



Inženirska akademija Slovenije
Predstavitev članic in članov

Slovenian Academy of Engineering
Introducing our Members



Ljubljana, februar 2021





Na naslovnici je skica najstarejšega ohranjenega lesenega kolesa na svetu, starega 5200 let in najdenega na Ljubljanskem barju. Kolo je razstavljeno v Mestnem muzeju v Ljubljani.

On the cover is a sketch of the world's oldest preserved wooden wheel. Five thousand two hundred years old, it was found in the Ljubljana Marshes. The bicycle is on exhibit in Ljubljana City Museum.

Izdala in založila | Published by
Inženirska akademija Slovenije

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Mark Pleško

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Oblikovanje, prelom in naslovница
Design and Cover Design
Lara Zupan

Tisk | Print
Birografika BORI, d.o.o.

Naklada | Copies
300

Ljubljana, 2021

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

001.32:62(497.4)

INŽENIRSKA akademija Slovenije
Inženirska akademija Slovenije : predstavitev članic in članov = Slo-
venian Academy of Engineering : introducing our members / [urednik
Blaž Zupan]. - Ljubljana : Inženirska akademija Slovenije, 2021

ISBN 978-961-6724-35-7
COBISS.SI-ID 48446979

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Spoštovani,

pred vami je brošura s kratko predstavljivjo delovanja članic in članov Inženirske akademije Slovenije.

Inženirska akademija Slovenije (IAS) že več kot dvajset let deluje kot samostojna ustanova, ki združuje vrhunske strokovnjake s področja tehniško-naravoslovnih ved in tehnološkega razvoja. Osnovna naloga naše akademije je vključevanje slovenske inženirske stroke v odločitve, ki zahtevajo vrhunsko strokovnost, in promocija inženirjev in inženirstva ter tehnološkega razvoja. Prizadevamo si za izgradnjo inovacijskega sistema v slovenskem gospodarstvu in za kakovostno izobraževanje na področju tehnike in naravoslovja.

Na mednarodnem področju akademija aktivno sodeluje v evropskem združenju inženirskih akademij Euro-CASE, kjer smo aktivni na področju inovacij, energetike in tehniškega izobraževanja. Akademija je tudi redna članica svetovnega sveta inženirskih akademij CAETS, kjer naš predstavnik deluje v svetu direktorjev.

Predhodnik akademije je leta 1992 ustanovljeno Slovensko akademško tehniško-naravoslovno društvo (SATENA), ki je bilo 28. novembra 1994 vpisano v register društev in deluje še danes. Statut in pravilnik društva SATENA je bil dopolnjen na tretji skupščini 21. junija 1995 z vključitvijo inženirske akademije kot sestavnega dela društva. Ta letna skupščina je zato prvi dogodek, ki bi ga lahko šteli za rojstni dan naše akademije.

Na četrti skupščini SATENE 31. maja 1996 je bilo izvoljenih prvih 38 članov takratne aka-

demije v sklopu društva. Potemtakem bi lahko bil rojstni dan naše akademije tudi ta dan, ko je bila akademija hkrati ustanovljena kot društvo, saj imajo vse ostale inženirske akademije, ustanovljene v novih državah JV Evrope, tak status še danes.

Prav tako bi lahko za rojstni dan z zakonom ustanovljene Inženirske akademije Slovenije štele tretji pomemben datum, 23. november 2006, ko je Državni zbor Republike Slovenije sprejel Zakon o Inženirski akademiji Slovenije in določil postopek ustanovitve. V prehodnih določbah je zakon opredelil, da se mora ustanovna skupščina akademije sestati najkasneje v dveh mesecih od dneva veljavnosti zakona in da so člani ustanovne skupščine vsi, ki so že člani akademije, kot je bila ta postavljena v okviru SATENE.

Skladno z zakonom se je 31. januarja 2007 zato sestala ustanovna skupščina akademije in izvolila začasno predsedstvo. Sledil je sestanek konstitutivne skupščine 11. aprila 2007, na katerem smo sprejeli statut in izvolili predsedstvo in člane akademije. Z dnem konstitutivne seje skupščine je prenehala delovati akademija, ki je bila ustanovljena v okviru SATENE. Zato je ta dan, 11. april 2007, formalni rojstni dan naše akademije.

V akademiji delujeta dva razreda: znanstvenoraziskovalni razred, ki ima 27 rednih in 8 izrednih članov, in razvojno-poslovni razred s 16 rednimi in 18 izrednimi člani. V akademiji so še širje častni člani in devet dopisnih oziroma tujih članov.

Ljubljana, november 2020

Stane Pejovnik, glavni tajnik IAS
Blaž Zupan, urednik brošure
Mark Pleško, predsednik IAS

Dear reader,

It is our privilege to present the almanac of the Slovenian Academy of Engineering, which provides short biographies of the academy's members outlining their work.

The Slovenian Academy of Engineering (SAE) has been in existence for more than twenty years as an independent foundation which brings together outstanding professionals from the technical and scientific academic disciplines as well as from technological development in industry. The core purpose of the Academy is to involve the Slovene engineering profession in decision-making which requires top-level scientific expertise as well as to promote engineers, engineering and technological development in general. We also promote and strive for innovation in Slovene business as well as top-quality scientific and technical education.

On an international level the Academy is active in the European federation of engineering academies, Euro-CASE, where we are particularly involved in the areas of innovation, energy and technical education. The Academy is in addition a full member of the world federation of engineering academies, CAETS, of which the president of the Slovene academy was also a member of the Board of Directors in 2018 and 2019.

The Academy's predecessor is the Slovene academic scientific and technical association (SATENA in Slovene) established in 1992, which was formally registered as an association on 24 November 1994 and is still active today. SATENA's articles of association and rulebook were then amended at its annual meeting on 21 June 1995 in order to incorporate an engineers' academy as an integral part of the association. That annual meeting of SATENA is therefore the first event which could be counted as the "date of birth" of our Academy.

The first 38 members of the Academy at the time were then elected under the auspices of the association SATENA at the association's fourth

annual meeting on 31 May 1996. This day, when the Academy was also established as an association in its own right, could therefore also be taken as the Academy's date of birth; indeed all the other engineering academies established in the new countries of South East Europe have a comparable status today.

A third important date, however, can also lay claim to the title of the "date of birth" of the Academy: 23 November 2006, when the Slovene Academy of Engineering was formally established by statute. The Slovene parliament passed on that day the Slovene Academy of Engineering Act which set out the procedure for the establishment of the Academy. In its implementation provisions, the Act stipulated that a general meeting of the Academy should be held no later than two months after the Act came into effect and that the members of the founding general meeting were to be the existing members of the Academy, when it was established as part of SATENA.

In accordance with the Act, the founding general meeting of the Academy was held on 31 January 2007 and an interim leadership was elected. A constitutive general meeting followed on 11 April 2007, where the Academy's articles of association were adopted and its governing body and members were elected. From that constitutive general meeting on, the academy which had been established as an integral part of SATENA ceased to be. For this reason, 11 April 2007 can be considered to be the formal "date of birth" of our Academy.

The Academy has two classes of membership: an academic and research-oriented class, which counts 27 fellow and 8 associate members, and business development-oriented class, which counts 16 regular and 18 associate members. In addition the Academy has four honorary members and nine corresponding (or foreign) members.

Ljubljana, November 2020

Stane Pejovnik, Secretary General, IAS
Blaž Zupan, Almanac Editor
Mark Pleško, President, IAS

Znanstvenoraziskovalni razred | Scientific-Research Class

Tadej Bajd	Jože Kobe	Tomaž Pisanski
Ivan Bratko	Spomenka Kobe	Dušan Repovš
Robert Dominko	Zdravko Kravanja	Karin Stana Kleinschek
Denis Đonlagić	Tamara Lah Turnšek	Stanko Strmčnik
Igor Emri	Jadran Lenarčič	Leopold Škerget
Peter Fajfar	Drago Matko	Miha Tomaževič
Matjaž Gams	Borut Mavko	Marko Topič
Peter Glavič	Dragan D. Mihailović	Jože Vižintin
Igor Grabec	Matjaž Mikoš	Blaž Zupan
Janez Grum	Bojan Mohar	Jure Zupan
Ferdinand Gubina	Janez Možina	Boris Žemva
Venčeslav Kaučič	Stane Pejovnik	

Razvojno-poslovni razred | Business-Development Class

Anton Bergant	Matjaž Lukač	Konrad Steblovnik
Janez Bešter	Marjan Mačkošek	Adolf Šostar
Božidar Brudar	Marko Marinček	Jurij Franc Tasič
Ilija Dimitrijević	Zoran Marinšek	Janez Trontelj
Robert Golob	Milan Medved	Uroš Urleb
Marko Jagodič	Boris Orel	Rok Uršič
Japec Jakopin	Marjan Pipenbacher	Peter Venturini
Miha Japelj	Janez Pirš	Franc Vodopivec
Borut Kelih	Mark Pleško	Danijel Zupančič
Hubert Kosler	Boštjan Podobnik	Robert Žerjal
Aleš Krainer	Stane Rožman	
Vojteh Leskovšek	Tomaž Savšek	

Pokojni člani | Deceased Members

Marija Kosec, 2012	Boris Vedlin, 2015
Janez Peklenik, 2016	Iztok Žun, 2016

Častni člani | Honorary Members

Duncan Haldane
Dušan Petrač
Ronald M. Sega
Sunita Williams

Umrlji častni člani
Janez Peklenik, 2016
Joseph F. Sutter, 2016
France Rode, 2018

Dopisni člani | Corresponding Members

Cristophe Ballif	Angus Kingon
Boerge Diderichsen	Yalin Lu
Jean-Marie Dubois	Nava Setter
Boris Vladimirovich Gusev	Yuntao Song
Thomas Heinze	

Redni člani | Fellows

Tadej Bajd	Jože Kobe	Stane Rožman
Anton Bergant	Tamara Lah Turnšek	Karin Stana Kleinschek
Ivan Bratko	Jadran Lenarčič	Stanko Strmčnik
Božidar Brudar	Vojteh Leskovšek	Leopold Škerget
Ilja Dimitrijevič	Matjaž Lukač	Adolf Šostar
Igor Emri	Zoran Marinšek	Jurij Franc Tasič
Peter Fajfar	Borut Mavko	Miha Tomaževič
Matjaž Gams	Matjaž Mikoš	Marko Topič
Peter Glavič	Bojan Mohar	Rok Uršič
Igor Grabec	Janez Možina	Jože Vižintin
Janez Grum	Stane Pejovnik	Franc Vodopivec
Ferdinand Gubina	Janez Pirš	Danijel Zupančič
Marko Jagodič	Tomaž Pisanski	Boris Žemva
Mihal Japelj	Mark Pleško	
Venčeslav Kaučič	Dušan Repovš	

Izredni člani | Associate Members

Janez Bešter	Zdravko Kravanja	Tomaž Savšek
Robert Dominko	Marjan Mačkošek	Konrad Steblovnik
Denis Đonlagić	Marko Marinček	Janez Trontelj
Robert Golob	Drago Matko	Uroš Urleb
Japec Jakopin	Milan Medved	Peter Venturini
Borut Kelih	Dragan D. Mihailović	Blaž Zupan
Spomenka Kobe	Boris Orel	Jure Zupan
Hubert Kosler	Marjan Pipenbacher	Robert Žerjal
Aleš Krainer	Boštjan Podobnik	

Predstavitev častnih članov

Presentation of Honorary Members



Janez Peklenik

(1926–2016)

*Ustanovitelj, prvi predsednik, častni član in častni predsednik
Inženirske akademije Slovenije*

Akademik Janez Peklenik se je rodil leta 1926. Bil je eden izmed najuglednejših slovenskih znanstvenikov na področju inženirske stroke.

Leta 1961 je bil habilitiran na TU Aachen. Naslednje leto je bil povabljen v ZDA kot gostujoči izredni profesor na Carnegie-Melon University v Pittsburghu. Temu je leta 1964 sledila izvolitev za rednega profesorja na Univerzi v Birminghamu v Angliji. Tedaj je začela računalniška tehnologija prodirati v proizvodne sisteme in procese ter revolucionarno spremišljati Taylorjevo zasnovo načina proizvodnje. Prvi na svetu je Peklenik ustanovil stolico za obdelovalne sisteme. Istočasno je bil izvoljen za rednega profesorja na Univerzi v Illinois, ZDA.

Najvidnejše uspehe je Janez Peklenik dosegel na področjih sprotne identifikacije in adaptivnega krmiljenja obdelovalnih procesov in sistemov, opisa in karakterizacije stohastičnih lastnosti tehničnih površin ter površinskih vmesnikov.

Za znanstvene dosežke je akademik Peklenik prejel številna mednarodna in domača priznanja. Ob medalji CIRP še ameriško medaljo F. W. Taylorja, s katero je bil odlikovan leta 1982.

Med drugim je prejel tudi državno Kidričevu nagrado (1975), berlinsko nagrado Georga Schlesingerja (1988), državno nagrado Republike Slovenije za življensko delo (1996) in bil imenovan za ambasadورja znanosti Republike Slovenije (1992). Je častni profesor Nanjinške Univerze za Aeronavtiko in Astronavtiko v Kitajski, Univerze v Birminghamu v Angliji in zasluzni profesor Univerze v Ljubljani.

Poleg tega je bil Janez Peklenik redni član SAZU, častni član mednarodne akademije CIRP, redni član Evropske akademije, Ruske inženirske akademije in ustanovitelj in častni predsednik Inženirske akademije Slovenije.



Founder, first president, honorary member and honorary president of the Engineering Academy of Slovenia

Member of the Academy, Janez Peklenik was born in 1926. He was one of the most distinguished Slovenian engineers.

In 1961, he received his habilitation at the Technical University of Aachen. The following year, he was invited to the United States as a visiting associate professor at Carnegie Mellon University in Pittsburgh. This was followed in 1964 by his appointment to the post of professor at the University of Birmingham in England. In that time, computer technology had begun to penetrate production systems and processes and to revolutionize Taylor's design of production mode. Peklenik was the first in the world to establish a chair for machining systems. At the same time, he was elected as a full professor at the University of Illinois, USA.

Janez Peklenik achieved the most visible successes in real-time identification and adaptive control of machining processes and systems, description and characterization of stochastic properties of technical surfaces and surface interfaces.

Professor Peklenik has received numerous international and domestic awards for his scientific achievements. In addition to the CIRP medal, he was awarded the American FW Taylor Medal in 1982. Among other things, he received the highest prize for scientific achievements in Slovenia, the Kidrič Prize (1975), the Georg Schlesinger Prize in Berlin (1988), the National Lifetime Achievement Award of the Republic of Slovenia (1996), and was named the Ambassador of Science of the Republic of Slovenia (1992). He was an honorary professor at Nanjing University of Aeronautics and Astronautics in China, the University of Birmingham in England, and an emeritus professor at the University of Ljubljana.

In addition, Janez Peklenik was a full member of SAZU, an honorary member of the CIRP International Academy, a full member of the European Academy, the Russian Academy of Engineering, and the founder and honorary president of the Slovenian Academy of Engineering.



Joseph F. Sutter

(1921–2016)

Legendarni Boeingov inženir, ki je vodil izdelavo letala Boeing 747

J. F. Sutter se je rodil leta 1921 v ZDA in se tam izšolal za inženirja aeronavtike. Njegov oče se je iz Dobrove pri Ljubljani izselil v ZDA že pred prvo svetovno vojno. Joseph F. Sutter se je zaposlil v podjetju Boeing, pri njem ostal vso delovno dobo, in napredoval do položaja podpredsednika družbe. Spada med raziskovalce, ki so se z inovativnostjo in ustvarjalnostjo uveljavili v tujem okolju, kjer so bili za inženirske ustvarjalnosti v takratnem času dani pogoji za uresničenje velikih idej. J. F. Sutterja lahko uvrstimo ob bok imen, kot so Vega, Stefan in Janez Puh.

J. F. Sutter spada med pionirje s področja letalstva. Zamisel je s sodelavci razvil v proizvod, revolucionarni preskok v razvoju konstrukcije komercialnih transportnih letal, s tem pa tudi specifičnih tehnologij, ki so vedno potrebne za uresničenja tako velikega in kompleksnega projekta. To letalo je skrajšalo razdalje med ljudmi z različnih kontinentov in letalsko potovanje približalo tudi preprostim ljudem. Zato bodo ustvarjalci in letalo ostali zapisani v zgodovini kot eden od vrhunskih dosežkov inženirske iznajdljivosti, ustvarjalnosti in poguma 20. stoletja.

Pomen dela J. F. Sutterja lahko najbolje razumemo, če naštejemo nekatere od zelo številnih nagrad in priznanj, ki so mu bila podeljena. Leta 1965 je bil prvič nagrajen za prispevek k konstrukciji letala Boeing 727. Sledi cela vrsta odmevnih priznanj in nagrad: leta 1971 nagrada American Institute of Aeronautics and Astronautics, leta 1980 nagrada Elmer Sperry za prispevek pri konstrukciji in izgradnji letala Boeing 747, leta 1984 je bil izvoljen za člena National Academy of Engineering, leta 1985 mu je predsednik ZDA R. Reagan v Beli hiši podelil National Medal of Technology za zasluge pri razvoju treh generacij letal. J. F. Sutter je bil tudi član številnih znanstvenih družb v ZDA, Angliji in Franciji, univerza v Washingtonu, School of Engineering, pa mu je podelila naziv častni profesor.



The legendary Boeing engineer who led the construction of the Boeing 747 aircraft

Joseph Sutter was born in the United States in 1921 and graduated there as an aeronautical engineer. His father had emigrated from Dobrova near Ljubljana to the USA before the First World War. Joseph F. Sutter took a job at Boeing, remained with the company throughout his tenure, and was promoted to vice president of the company. He is one of the researchers who established himself with inventiveness and creativity in a foreign environment, where the conditions for the realization of great ideas were propitious for engineering creativity at that time. Joseph Sutter can be ranked alongside famous Slovenes like Vega, Stefan, and Janez Puh.

Joseph Sutter is one of the pioneers in the field of aviation. He and his colleagues developed the idea into a product that marked a revolutionary leap in the development of commercial transport aircraft. This aircraft shortened the distances between people from different continents and brought air travel closer to ordinary people as well. The creators and the aircraft will remain written in history as one of the top achievements of engineering ingenuity,

creativity, and courage of the 2nd century.

The significance of the work of J.F. Sutter can best be understood by listing some of the very many awards and recognitions that have been given to him. In 1965, he was first rewarded for his contribution to the construction of the Boeing 727. A number of high-profile awards and prizes followed: in 1971, the American Institute of Aeronautics and Astronautics Award, in 1980 the Elmer Sperry Award for his contribution to the design and construction of the Boeing 747 aircraft, in 1984 he was elected a member of the National Academy of Engineering, in 1985 he was awarded at the White House by President Ronald Reagan the National Medal of Technology for services to the development of three generations of aircraft. J.F. Sutter was also a member of many scientific societies in the United States, England, and France. The University of Washington and the School of Engineering awarded him the title of honorary professor.



Dušan Petrač

(1932–)

Sodelavec NASA-e pri izgradnji prvega infrardečega astronomskega satelita (IRAS)

Dušan Petrač se je rodil 1932 v Kropi na Gorenjskem. Na Univerzi v Ljubljani je diplomiral iz fizike, študij pa nadaljeval na podiplomskem študiju v ZDA, na Fakulteti za fiziko in astronomijo Univerze v Kaliforniji v Los Angelesu (UCLA) z doktoratom iz fizike.

Raziskovalno delo je opravljal na Jet Propulsion Laboratory (JPL) v California Institute of Technology, Pasadena v Kaliforniji v raziskovalnih projektih NASA. V JPL je sodeloval pri razvijanju in izvedbi štirih znanstvenih in tehničkih eksperimentov v mikrogravitaciji na vesoljskih taksijih, pri dveh tudi v povezavi z Univerzo v Stanfordu. Njegove najzahtevnejše naloge so bile pri razvijanju in gradnji prvega infrardečega astronomskega satelita (IRAS), v sodelovanju z Nizozemsko in Veliko Britanijo. IRAS se je odlikoval z mnogimi epohalnimi odkritji oziroma izumi. Dr. Petrač je prispeval rešitev kontrole infrardeče fokalne »ravnine« s 64 detektorji v štirih infrardečih valovnih pasovih. Uvedel je metodo za merjenje mase supertekočega helija v breztežnosti. To metodo so uporabili tudi pri Evropskem infrardečem observatoriju,

na teleskopu Spitzer Space.

Znaten je tudi njegov prispevek pri uporabi polprevodniške elektronike pri nizkih temperaturah. Razvil je tudi He-3 in He-4 dilucijski hladilnik, ki bi delal v breztežnosti. Sodeloval je pri razvijanju detektorjev za misijo »Terrestrial Planet Finder«, katerega cilj je odkriti Zemlji podobne planete okrog »bližnjih« zvezd, s pomočjo interferenčnih optičnih metod.

Bil je svetovalec Univerze Stanford, Freie Universität v Berlinu, univerze v Tsukubi ter firme Lockheed Martin Marietta.

Za zasluge pri vpeljavi kriogenike v vesolje je dobil medaljo Dr. Kurt Mendelssohn, priznanje ICEC (International Cryogenic Engineering Conference), prejel je medaljo NASA za izredne zasluge, dobil je naziv častni senator mariborske univerze, je častni meščan mesta Los Angeles.



NASA collaborator on the construction of the first infrared astronomical satellite (IRAS)

Dušan Petrač was born in Kropa in the Gorenjska region in 1932. He graduated in physics from the University of Ljubljana. He continued his studies at the postgraduate level at the Faculty of Physics and Astronomy of the University of California, Los Angeles (UCLA) with a doctorate in physics.

He conducted research work at the Jet Propulsion Laboratory (JPL) at the California Institute of Technology, Pasadena, California, in NASA research projects. At JPL, he participated in developing and implementing four scientific and technological experiments in microgravity on space taxis, and in two further experiments, he also collaborated with Stanford University. His most demanding tasks were designing and constructing the first infrared astronomical satellite (IRAS) in cooperation with the Netherlands and Great Britain. The IRAS was associated with many epochal discoveries or inventions distinguished. Dr. Petrač contributed to controlling the infrared focal “plane” with 64 detectors in four infrared wavebands. He introduced a method for measuring the mass of su-

perfluid helium in weightlessness. This method was also used at the European Infrared Observatory, on the Spitzer Space Telescope.

His contribution to the use of semiconductor electronics at low temperatures is also significant. He also developed a He-3 and He-4 dilution cooler that would work in weightlessness. He was involved in developing detectors for the “Terrestrial Planet Finder” mission, aiming to detect Earth-like planets around “nearby” stars, using optical interference methods.

He was a consultant to Stanford University, the Freie Universität in Berlin, the University of Tsukuba, and Lockheed Martin Marietta.

For his services in introducing cryogenics into space, he received the Dr. Kurt Mendelsohn medal, recognition at the International Cryogenic Engineering Conference. He also received the NASA Medal of Outstanding Merit and was awarded the title of Honorary Senator of the University of Maribor. Dr. Petrač is an honorary citizen of Los Angeles.



Sunita Lyn Williams

(1965–)

Ameriška astronavtka slovenskega porekla

Sunita Williams se je rodila leta 1965. Pra-prababica po materini strani je iz Leš pri Tržiču v današnji Sloveniji. Leta 1987 je diplomirala iz fizikalnih znanosti na Pomorski akademiji Združenih držav Amerike in leta 1995 magistrirala iz inženirskega menedžmenta na Floridskem tehološkem inštitutu.

Maja 1987 je postala pripadnica ameriške Vojne mornarice. Nato je delovala kot preizkusna pilotka in varnostna častnica mornariškega direktorata za helikopterje, kasneje pa tudi kot inštruktorica letenja v šoli za preizkusne pilote in nadzornica poletov na amfibijsko-desantni ladji USS Saipan. Ima več kot 3.000 ur letenja na več kot 30 različnih zrakoplovih.

Junija 1998 je bila izbrana kot kandidatka za program vesoljskih poletov agencije NASA. Po opravljenem treningu je delovala v Ruski vesoljski agenciji na programu sodelovanja pri Mednarodni vesoljski postaji. Prvič je v vesolje poletela 9. decembra 2006 na krovu raketopla na Discovery kot članica 14. odprave na Mednarodno vesoljsko postajo, kjer je ostala tudi v sklopu 15. odprave in s štirimi izhodi v odprto vesolje prvič postavila ženski rekord v trajanju

bivanja v odprttem vesolju. Leta 2012 je znova poletela na Mednarodno vesoljsko postajo z misijo Sojuz, kot članica odprav 32 in 33, pri slednji kot poveljnica postaje. Bila je druga ženska na položaju poveljnice Mednarodne vesoljske postaje. Med svojo drugo odpravo je opravila tri sprekhode po odprttem vesolju, med katerimi je izvajala popravila na zunanjosti postaje, in znova prevzela ženski rekord v trajanju bivanja v odprttem vesolju.

Sunita Williams je v vesolju preživel skupaj 322 dni na dveh misijah. Njen čas bivanja v odprttem vesolju, 50 ur in 40 minut, je šesti najdaljši čas bivanja v odprttem vesolju ameriških astronautov vseh časov. Njenih 195 dni je še vedno ženski rekord za najdaljši vesoljski polet, kot tudi največje število izhodov v odprto vesolje.

Leta 2015 je bila izbrana med prve astronaute NASA za komercialne vesoljske polete in sedaj deluje pri Boeing in SpaceX. V 2018 je bila določena za poveljnico poleta z Boeing CST-100 Starliner na mednarodno vesoljsko postajo (ISS) – predvidoma v 2021.



American astronaut of Slovenian origin

Sunita Williams was born in 1965. Her great-great-grandmother is from Leš near Tržič in today's Slovenia. She graduated with a bachelor's degree in physical sciences from the United States Naval Academy in 1987 and a master's degree in engineering management from the Florida Institute of Technology in 1995.

In May 1987, she became a member of the U.S. Navy. She then worked as a test pilot and security officer for the Naval Directorate of Helicopters, and later as a flight instructor at the School for Test Pilots and flight supervisor on the USS Saipan amphibious landing ship. She has more than 3,000 hours of flight time on more than 30 different aircraft.

In June 1998, she was selected as a candidate for NASA's space flight program. After completing her training, she worked at the Russian Space Agency on a program of cooperation with the International Space Station. She first flew into space on December 9, 2006, aboard the Discovery rocket plane as a member of the 14th International Space Station expedition, where she also remained on the 15th expedition and set a female record for the duration of her

stay in open space for the first time with four spacewalks. In 2012, she flew again to the International Space Station with the Soyuz mission, as a member of expeditions 32 and 33, with the latter as the station commander. She was the second woman to hold the position of International Space Station Commander. During her second expedition, she took three walks in open space, during which she made repairs to the exterior of the station, and again took the women's record for the duration of her stay in open space.

Sunita Williams spent a total of 322 days in space on two missions. Her open space-time, 50 hours and 40 minutes, is the sixth-longest open space-time of American astronauts of all time. Her 195 days is still the female record for the longest space flight and the largest number of open space exits: seven.

In 2015, she was selected as one of NASA's first astronauts for commercial spaceflight and now works for Boeing and SpaceX. In 2018, she was appointed commander of a flight with a Boeing CST-100 Starliner to the International Space Station (ISS) - expected in 2021.



Franc Rode

(1934–2018)

Izumitelj žepnega kalkulatorja HP-35 in kartice RFID

Dr. France Rode se je rodil 20. novembra 1934 v Nožicah. Odločil se je za študij elektroinženirstva. Zaradi želje po spoznavanju sveta je dr. Rode po končani diplomi leta 1960 zapustil tedenj Jugoslavijo in se odpravil v ZDA. Na Northwestern University v Evanstonu, Illinois, je leta 1962 magistriral iz biomedicine. Po diplomi se je preselil v Kalifornijo, kjer se je 1962 zaposlil v podjetju Hewlett-Packard. Tu se je začela njegova izjemna znanstvena pot, ki sta jo najbolj zaznamovala izuma žepnega kalkulatorja leta 1971 in kartice za registracijo delovnega časa.

Prvih 8 let pri Hewlett-Packardu je dr. Rode načrtoval digitalne merilne instrumente. Ko se je izkazalo, da bi računalniške sposobnosti, če bi bile vgrajene v frekvenčni števec, lahko izboljšale točnost meritev za faktor 1000, mu je bila zaupana naloga, da idejo realizira. Pod njegovim vodstvom je tako nastal »Computing Counter« HP-5360A. To je bil prvi instrument z vgrajenim procesorjem. Ideja, vgraditi procesorje v merilni instrument, je spremenila princip načrtovanja merilnih instrumentov. Posledica HP-5360A je bila tudi, da je HP začel interna izdelovati bipolarna vezja za lastno uporabo. Dr. Rode je načrtal in izdelal maske za prvo integrirano vezje.

Naslednjih 12 let se je ukvarjal z razvojem

novih izdelkov. Med nalogami je bil HP-35, prvi žepni računalnik. Dr. Rode je bil udeležen pri načrtovanju celotnega programa za računalnik. HP-35 je bil za tiste čase izziv skrajnega dosegja, projekt pa je bil končan v presenetljivo kratkem času in računalniki so bili v prodaji že po enem letu. V fazi odobritve projekta so zapisali, da bo projekt uspešen, če bodo v prvem letu proizvodnje prodali 10.000 žepnih kalkulatorjev, prodali pa so jih desetkrat toliko.

Leta 1979 je dr. Rode na podlagi svojega patentata za elektronsko ključavnico skupaj s kolegom ustanovil podjetje Sielox Inc. Jeseni 1982 je zapustil delo pri HP in se polno posvetil izdelavi elektronskih ključavnic in varnostnih naprav. Identifikacijski ključ je bila kartica, danes znana pod imenom RFID (Radio-Frequency Identification). Sielox je leta 1986 kupilo podjetje Checkpoint Systems Inc., kjer je dr. Rode delal kot podpredsednik za raziskave in razvoj do leta 1990.

Leta 1990 je dr. Rode sprejel delo pri Trimble Navigation Ltd. ter vodil projekt za slepo pristajanje letala na podlagi GPS (Global Positioning System). Z idejo, da se GPS vgradi v mobilni telefon, je leta 1999 še z dvema kolegom ustanovil podjetje eRide Inc. ter izdelal integrirana vezja, ki se še danes uporablja za navigacijo v telefonih in avtomobilih.



Inventor of the HP-35 pocket calculator and RFID card

Dr. France Rode was born on November 20, 1934, in Nožice. He decided to study electrical engineering. Due to the desire to get to know the world after graduating in 1960, Rode left Yugoslavia and went to the United States. He received his master's degree in biomedicine in 1962 from Northwestern University in Evanston, Illinois. After graduation, he moved to California, wherein in 1962, he joined Hewlett Packard. This is where his remarkable scientific journey began, most marked by the inventions of the pocket calculator in 1971 and the time and attendance card.

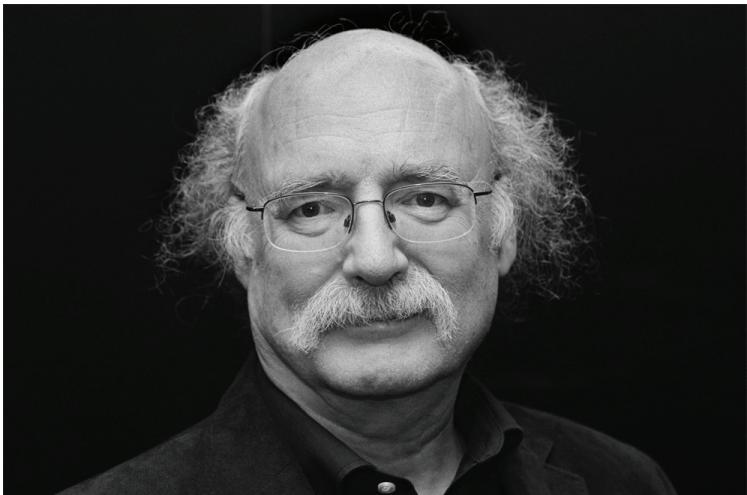
For his first eight years at Hewlett-Packard, Dr. Rode designed digital measuring instruments. When it turned out that computing skills, if built into a frequency counter, could improve the accuracy of measurements by a factor of 1000, he was entrusted with the task of realizing the idea. Under his leadership, the "Computing Counter" HP-5360A was created. It was the first instrument with a built-in processor. The idea to incorporate processors into a measuring instrument changed the design principle of measuring instruments. The HP-5360A also resulted in HP starting to internally manufacture bipolar circuits for its own use. Dr. Rode designed and manufactured the masks for the first integrated circuit.

For the next 12 years, he was engaged in the

development of new products. Among these tasks was the HP-35, the first pocket calculator. Dr. Rode was involved in the design of the entire computer program. The HP-35 was a massive challenge for those times, but the project was completed in a surprisingly short time, and the computers were on sale after just one year. In the project approval phase, they wrote that the project would be successful if they sold 10,000 pocket calculators in the first year of production, but they sold ten times as many.

In 1979, Dr. Rode founded Sielox Inc. with a colleague based on his patent for an electronic lock. In the fall of 1982, he left his job at HP and devoted himself entirely to the manufacture of electronic locks and security devices. The identification key was a card known today as RFID (Radio-Frequency IDentification). Checkpoint Systems Inc. acquired Sielox in 1986, where Dr. Rode served as vice president of research and development until 1990.

In 1990, Dr. Rode accepted a job at Trimble Navigation Ltd and led a project for the blind landing of aircraft based on GPS (Global Positioning System). With the idea of incorporating GPS into a mobile phone, he founded eRide Inc. in 1999 with two other colleagues and manufactured integrated circuits that are still used today for navigation in telephones and cars.



Frederick Duncan Michael Haldane (1951-)

Nobelov nagrajenec za fiziko v letu 2016

Profesor Frederick Duncan Michael Haldane je teoretični fizik, rojen leta 1951 v Veliki Britaniji očetu Škotu Haldanu in materi koroški Slovenki Ljudmili Renko. Po narodnosti pravi, da je na pol Škot in pol Slovenca.

Profesor Duncan Haldane je leta 1978 doktoriral iz fizike na Univerzi v Cambridgeu, kjer je bil njegov mentor Nobelov nagrajenec P. W. Anderson. Do leta 1981 je nato delal na Institutu Laue-Langevin v Grenoblu, v letih 1981–1987 na Univerzi Južne Kalifornije in nato med 1987 in 1992 na Univerzi v Kaliforniji v Los Angelesu (UCLA). Leta 1990 je sprevzel mesto profesorja na Univerzi v Princetonu, kjer dela še danes.

S Slovenijo ga poleg sorodstvenih vezi povezujejo tudi strokovne povezave s slovenskimi fiziki. Leta 2000 je bil vabljeni predavatelj na konferenci o teoretični fiziki na Bledu, ki so jo organizirali sodelavci Fakultete za matematiko in fiziko UL in Instituta Jožef Stefan. V letu 2018 je bil na daljšem obisku v Ljubljani, kjer je imel dve izjemno obiskani predavanji, v okviru Stefanovih dnevov na Institutu Jožef Stefan, ter predavanje za študente fizike na Fakulteti za matematiko in fiziko. Decembra lani mu je bil podeljen častni doktorat Univerze v Ljubljani.

Izvirnost fizike Duncana Haldana ima izjemno ugled med fiziki v svetu, na kar kažejo številna priznanja v svetu še pred Nobelovo nagrado. Leta 1993 je prejel nagrado Oliverja E. Buckleyja Ameriškega fizikalnega društva za kondenzirano snov. Leta 1992 je bil imenovan za člana Ameriške Akademije znanosti in umetnosti in leta 1996 za člana Royal Society v Londonu (FRS). Leta 2012 je prejel tudi Diracovo medaljo Abdus Salam Centra za teoretično fiziko v Trstu.

Eksperimentalni dokaz Haldanove teoretičnih napovedi pa je privedel Švedsko akademijo znanosti do odločitve, da mu skupaj s kolegom Davidom J. Thoulessom in J. Michael Kosterlitzom leta 2016 podeli Nobelovo nagrado za »teoretična odkritja topoloških faznih prehodov in topoloških stanj snovi«.

Leta 2017 je prejel nagrado slovensko-ameriške izobraževalne fondacije ASEF za življenjsko delo, leta 2019 pa je postal tudi slovenski državljan.



Nobel laureate in physics in 2016

Professor Frederick Duncan Michael Haldane is a theoretical physicist born in 1951 in Great Britain to his father, Scott Haldane, and his mother, Carinthian Slovene Ljudmila Renko. According to his ethnicity, he says that he is half Scottish and half Slovene.

Professor Duncan Haldane received his doctorate in physics from the University of Cambridge in 1978, where his mentor was Nobel Laureate P. W. Anderson. Until 1981, he then worked at the Laue-Langevin Institute in Grenoble, from 1981 to 1987 at the University of Southern California, and then between 1987 and 1992 at the University of California, Los Angeles (UCLA). In 1990, he accepted a professorship at Princeton University, where he still works today.

In addition to family ties, he is also connected with Slovenia by professional connections with Slovenian physicists. In 2000, he was an invited lecturer at a conference on theoretical physics in Bled, organized by the Faculty of Mathematics and Physics of the University of Ljubljana and the Jožef Stefan Institute. In 2018, he paid an extended visit to Ljubljana, where he gave two extremely well-attended lectures, as part of Stefan's days at the Jožef Stefan Institute, and a lec-

ture for physics students at the Faculty of Mathematics and Physics. In December last year, he was awarded an honorary doctorate from the University of Ljubljana.

Duncan Haldane's originality as a scientist has an outstanding reputation among physicists globally, as evidenced by numerous accolades in the world even before the Nobel Prize. In 1993, he received the Oliver E. Buckley Award from the American Physical Society for Condensed Matter. In 1992 he was appointed a fellow of the American Academy of Sciences and Arts and, in 1996, a fellow of the Royal Society of London (FRS). In 2012, he also received the Dirac Medal from the Abdus Salam Center for Theoretical Physics in Trieste.

Experimental proof of Haldane's theoretical predictions led the Swedish Academy of Sciences to decide to award him, along with colleagues David J. Thouless and J. Michael Kosterlitz, the 2016 Nobel Prize for "theoretical discoveries of topological phase transitions and topological states of matter".

In 2017, he received the award of the Slovenian-American Educational Foundation ASEF for his life's work, and in 2019 he also became a Slovenian citizen.



Ronald “Ron” Michael Sega (1952–)

*Profesor za sistemsko inženirstvo ter ameriški astronaut
slovenskega porekla*

Prof. dr. Ronald M. Sega (tudi Šega) je sin slovenskih izseljencev v ZDA. Njegova stara starša izvirata iz Loškega Potoka, od koder sta pred prvo svetovno vojno odšla v Ameriko.

Prof. Ronald M. Sega je bil ameriški astronaut v letih od 1991 do 1996, sedaj pa je zaslužni profesor za sistemsko inženirstvo ter specjalni pomočnik za strateške iniciative rektorju Colorado State University v ZDA.

Svojo strokovno kariero je začel kot študent fizike in matematike na U.S. Air Force Academy (diplomiral 1974), nadaljeval študij fizike na Ohio State University (MS 1975) in doktoriral iz elektrotehnike na University of Colorado (leta 1982).

Svojo izjemno talentiranost in življensko energijo je v mladosti usmeril v letalstvo, kjer je dosegel praktično vse, kar je sploh mogoče: bil je vojaški pilot – od inštruktorja do general majorja ameriških letalskih sil. Izredno aktivno se je vključil v vesoljski program NASA: dvakrat je bil v vesolju. Pri drugi misiji je vodil znanstveni eksperiment, ki je bil osnovan na rezultatih njegovega raziskovalnega projekta.

Kot izjemen strokovnjak je bil aktivno vključen v vodenje raziskav za potrebe ameriškega Ministrstva za obrambo. V letih 2005–2007 je bil tudi pomočnik sekretarja za letalstvo.

Klub razgibani karieri prof. Ronald M. Sega ni nikoli prenehal z raziskovalnim delom. Aktivno se je vključeval v raziskovalno delo na University of Colorado, kjer je zaslužni profesor. Bil je član vrste najpomembnejših odborov, ki usmerjajo financiranje znanstvenoraziskovalnega dela v ZDA. Prof. dr. Ronald M. Sega je za svoje izjemno delo prejel vrsto priznanj. Slovenijo je večkrat obiskal zasebno in tudi uradno na povabilo predsednika države, Ministrstva za obrambo in Ameriško-slovenske gospodarske zbornice. Med temi obiski je o svojem vesoljskem programu predaval na Institutu Jožef Stefan in na Univerzi v Ljubljani, Fakulteti za strojništvo.



Professor of systems engineering and American astronaut of Slovenian origin

Professor Ronald M. Sega (also Šega) is the son of Slovenian emigrants to the USA. His grandparents come from Loški Potok, from where they emigrated to America before the First World War.

Professor Ronald M. Sega was an American astronaut from 1991 to 1996 and is now emeritus professor of systems engineering and a special assistant for strategic initiatives to the rector of Colorado State University in the United States.

He began his professional career as a student of physics and mathematics at the U.S. Air Force Academy (graduating in 1974), continued his studies in physics at Ohio State University (MS 1975), and received his doctorate in electrical engineering from the University of Colorado (1982).

In his youth, he focused his exceptional talent and life energy on aviation. He achieved practically everything possible: he was a military pilot - from instructor to major general of the U.S. Air Force. He became extremely active in the NASA space program: he was in space

twice. In the second mission, he led a scientific experiment based on the results of his research project.

As an outstanding expert, he was actively involved in conducting research for the U.S. Department of Defense's needs. In 25-27, he was also Assistant Secretary of Aviation.

Despite his varied career, professor Ronald M. Sega never stopped his research work. He has been actively involved in research work at the University of Colorado, where he is an emeritus professor. He has been a member of a number of the most important committees that direct research funding in the United States. Professor Ronald M. Sega has received a number of awards for his outstanding work. He has visited Slovenia several times, both privately and officially, after being invited by the President of the Republic, the Ministry of Defense, and the American-Slovenian Chamber of Commerce. During these visits, he lectured on his space program at the Jožef Stefan Institute and at the University of Ljubljana, Faculty of Mechanical Engineering.

Predstavitev članov

Presentation of Academy Members



Tadej Bajd

1949 rojen v Ljubljani | Born in Ljubljana

1972 diplomira iz modeliranja velikih sistemov | Undergraduate degree, thesis on modelling of large scale systems, University of Ljubljana

1979 doktorira iz izračuna električnega vzbujanja mišic | defends doctorate on the optimization of electrical stimulation of muscles, University of Ljubljana

1980 docent | Assistant professor, University of Ljubljana

1981 gostujoč raziskovalec | visiting research fellow, University of Southern California, Los Angeles

1984 gostujoč raziskovalec | visiting research fellow, Strathclyde University, Glasgow

1990 redni profesor | full professor, University of Ljubljana

2014 zaslužni profesor | professor emeritus, University of Ljubljana

Dr. Bajd je na Fakulteti za elektrotehniko Univerze v Ljubljani predaval predmete s področja robotike. Je avtor več učbenikov o robotiki, ki so izšli v slovenščini in angleščini. Angleške učbenike je izdala založba Springer. Bajd je bil predsednik Slovenske akademije znanosti in umetnosti. Naziv Fellow so mu podelile naslednje mednarodne organizacije: IEEE (Institute of Electrical and Electronic Engineers), AIMBE (American Institute of Medical and Biological Engineering) in EAMBES (European Alliance for Medical and Biological Engineering and Science). Je član EASA (European Academy of Sciences and Arts) in IAE (International Academy of Engineering).



Spastičnost v ekstenzorjih in fleksorjih kolena merimo, medtem ko bolnik leži na hrbtnu na mizi za testiranje. Terapevt dvigne nogo v horizontalni položaj. Potem nogo izpusti, da prosto zaniha. Ob tem merimo kot v kolenu (goniogram) in elektromiografski signal (EMG) ekstenzorjev kolena.

During the pendulum test, the knee joint angle was assessed with a double parallelogram goniometer. The paper describing the development of a measuring device for assessment of spasticity by the use of the pendulum test is after more than thirty years still widely cited.

As a scientist, Bajd researches motion in men and machine. Among his early achievements was a synthesis of minimal walking patterns aided by functional electrical stimulation in individuals suffering partial or complete spinal cord lesion. He developed several methods and devices for biomechanical measurements, including a computerised measuring system for walking, a measuring device for the assessment of spasticity, the measurement of joint torques in when standing up, as well as the measurement and evaluation of grasping. He focused a significant part of his late research on the study of collisions between humans and industrial or collaborative robots.

Izbrane dela | Important Works

T. Bajd, A. Kralj, and R. Turk (1982) Standing-up of a healthy subject and a paraplegic patient. *J. Biomechanics* 15(1):1-10.

T. Bajd and L. Vodovnik (1984) Pendulum testing of spasticity. *J. Biomed. Eng.* 6:9-16.

B. Povše, S. Haddadin, R. Belder, D. Koritnik, and T. Bajd (2016) A tool for the evaluation of human lower arm injury: approach, experimental validation and application to safe robotics. *Robotica* 34(11):2499-2515.

Izbrane nagrade | Selected Awards

1976, 1982 nagrada Sklada Borisa Kidriča | Boris Kidrič Fund Award

1990 Kidričeva nagrada | Kidrič Award

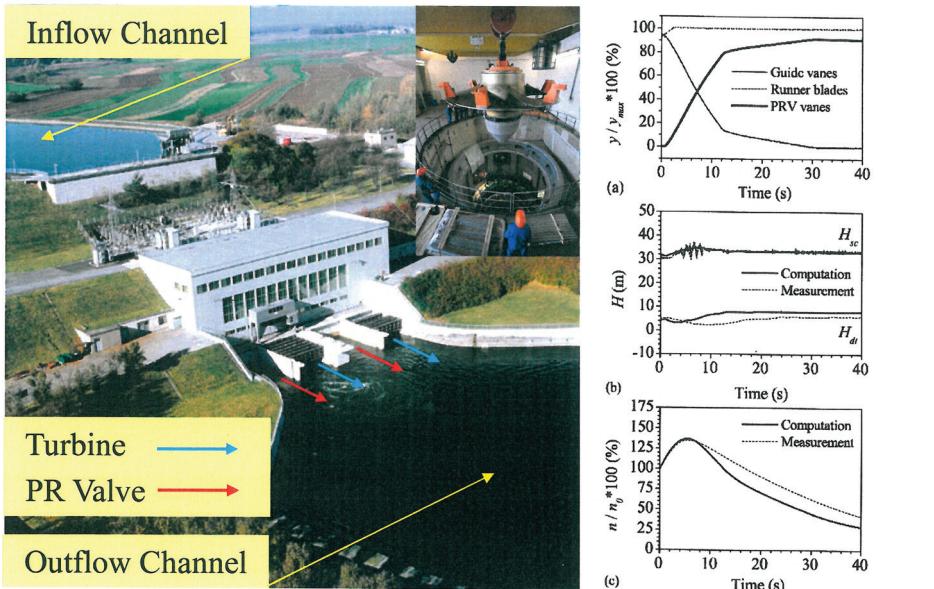
1993 nagrada Milana Vidmarja | Vidmar Award



Anton Bergant

- 1957** rojen v Ljubljani | Born in Ljubljana, Slovenia
1980 zaposlitev v Litostroju | Joins Litostroj, Slovenia
1981 diplomira iz vodnega udara | Undergraduate degree, thesis on water hammer, University of Ljubljana
1985 magistrira | Master's degree, University of Ljubljana
1989 raziskovalec | Research officer, University of Adelaide (to 1993)
1993 doktorira iz prehodnega kavitacijskega toka | Defends doctorate on transient cavitating flow, University of Ljubljana
1996 docent | Assistant professor, University of Ljubljana
1998 vodja oddelka | Head of department, Litostroj
2001 dopolnilna zaposlitev | Part-time employment, University of Ljubljana
2009 izredni profesor | Associate professor, University of Ljubljana

Dr. Bergant izhaja iz slovenske šole načrtovanja in izgradnje vodnih turbin in sistemov, katere začetek sega v prvo polovico 19. stoletja. Zanimanje za hidravliko so mu v zgodnjih otroških letih vzudili domači gasilci. V Litostroju in na ljubljanski strojni fakulteti nadaljuje z delom dr. Vladimirja Jordana, slovenskega pionirja na področju raziskav in izračunov vodnega udara. Ožje znanstvene raziskave zajemajo postavitev teoretičnih modelov in algoritmov za kavitacijski tok in neustaljeno stensko trenje med prehodnimi pojavi v cevnih sistemih. Izdelal je več kot 50 industrijskih elaboratov in razvil računalniške programe za vodni udar, hidravlične vibracije in hidravlično analizo gradnikov hidroelektrarn in črpališč postaj. Izračune vodnega udara je izdelal za vse večje slovenske hidroelektrarne na Dravi (HE od Dravograda do Maribora, Zlatoličje), Savi (Moste, HE na spodnji Savi) in Soči (Doblar, Plave). Podobne izračune je izdelal tudi za številne hidroelektrarne in črpalne postaje po svetu.



Vodni udar v hidroelektrarni Zlatoličje, Slovenija. Strojnica s kanalom in kaplanova turbino. Primerjava rezultatov izračuna in meritev za hitro zaporo turbin-skega agregata iz moči 75 MW.

Water Hammer in Zlatoličje hydropower plant, Slovenia. Powerhouse with channels and Kaplan turbine. Comparison of calculated and measured results for the emergency shutdown of the turbine unit from the load of 75 MW.

Dr. Anton Bergant has become involved in hydraulics as a junior fireman in his village. As a professional engineer and researcher, he has focused on the hydraulics of water turbines and systems. He leads the Applied Research and Calculations Department in Litostroj Power and is a part-time employee with at the University of Ljubljana, Faculty of Mechanical Engineering. In Litostroj, he has been the principal investigator on many research and industrial projects for domestic and international customers. He has served as a member of professional boards for the resolution of water hammer and flow-induced vibration problems. Dr. Bergant's main topic of research is the transient cavitating pipe flow. He is currently collaborating with researchers from Australia, Canada, China, The Netherlands, Montenegro, and Poland. He has been involved in the design and construction of several experimental apparatuses (Adelaide, Delft, Podgorica) and the development of software codes for hydraulic transients in systems. Recently he has developed a novel water hammer interferometer.

Izbrana dela | Important Works

A. Bergant, A.R. Simpson, and J. Vítkovský (2001) Developments in unsteady pipe flow friction modeling. *Journal of Hydraulic Research* 39(3):249-258.

A. Bergant, A.R. Simpson, and A.S. Tijsseling (2006) Water hammer with column separation: a historical review. *Journal of Fluids and Structures* 22(2):135-171.

Izbrane nagrade | Selected Awards

- 2016 priznanje Univerze v Črni gori | Recognition of University of Montenegro
- 2009 odlikovanje za posebne zasluge | Decoration for special merits, FA Slovenia
- 1995, 1997 štipendije SZF in MZT za podoktorsko izpopolnjevanje | SSF and MST postdoctoral fellowships - University of Adelaide
- 1987 nagrada ORS | ORS award, United Kingdom
- 1986 štipendija RS za izpopolnjevanje | RA visiting scholarship - University of Leeds



Janez Bešter

- 1979** diplomira iz elektrotehnike | BSc in electrical engineering
1982 magistriра iz elektrotehnike | Master's in electrical engineering
1983 zaposlитеv na Fakulteti za elektrotehniko | Starts employment at the Faculty of Electrical Engineering
1995 doktorira iz elektrotehnike | PhD in electrical engineering
1996 predstojnik Laboratorija za telekomunikacije | Head of Laboratory for Telecommunications
2007 gostujuč profesor na TU Graz | Visiting professor at TU Graz
2008 redni profesor | Full professor
2015 predstojnik Laboratorija za multimedijo | Head of Laboratory for Multimedia
2017 predstojnik Katedre za IKT | Head of ICT Department
2020 predstojnik Centra Digitalna Univerza | Head of Centre Digital University

Janez Bešter znanstvenoraziskovalno deluje na področjih IKT, multimedije, e-izobraževanja ter odkrivanja in razvoja talentov. Pri svojem delu stremi predvsem k tehnološkim rešitvam in storitvam za večjo dodano vrednost v gospodarstvu in izboljšanju kakovosti življenja. Aktivno je sodeloval pri ustanovitvi slovenske Tehnološke mreže ICT, Centra odličnosti IKT in pri vzpostavitevi OpenLaba. Kot dolgoletni vodja Laboratorija za telekomunikacije in kasneje za multimedijo je vodil ekipo več kot 50 sodelavcev ter sodeloval pri številnih, pogosto pionirskeh projektih s podjetji. Bil je med ključnimi pobudniki za uvedbo novega interdisciplinarnega študijskega programa Multimedija na Univerzi v Ljubljani. V okviru pedagoškega dela je bil mentor več kot 280 doktorjem in magistrom znanosti ter diplomantom. Med letoma 1997 in 2020 je bil nosilec več kot 50 projektov, bil je mentor 8 mladim raziskovalcem, sodeloval je v 13 ter dodatno vodil 8 raziskovalnih projektov ARRS, njegova bibliografija obsega čez 700 enot. Je soizumitelj na enim evropskem, 5 ameriških in 12 slovenskih patentih.



Študijski program Multimedija izobražuje perspektivne interdisciplinarne inženirke in inženirje. Program, v partnerstvu s podjetji, omogoča odlično zaposljivost in mednarodno konkurenčnost. Prof. dr. Janez Bešter je s svojim delovanjem pomembno prispeval k vzpostavitvi tega novega programa v letu 2014.

In partnership with companies, the Academic Study Programme in Multimedia at the University of Ljubljana provides excellent job opportunities and internationally competitive acquired competence. Prof. Dr. Janez Bešter was one of the driving forces behind and key contributors to the program's creation.

Janez Bešter is a professor at the Faculty of Electrical Engineering, University of Ljubljana. His scientific and research work encompasses ICT, multimedia, e-learning, talent hunting, and HR management. His work focuses on technology-enhanced improvements in the functioning and quality of everyday life with great emphasis on e-solutions. For several decades he has been the Head of the Laboratory for Telecommunications and then the Laboratory for Multimedia. With his team of over 50 (mostly educated in-house) co-workers and associates, he has worked on numerous, often pioneering, projects with companies as well as with the public sector. He thoroughly understands it takes more than top-notch developers and creative engineers for a successful product, which is why his team includes social scientists, marketing experts, and other talented interdisciplinary professionals. Bešter places great emphasis on providing young, ambitious students with a broad array of knowledge and practical experience, thus enabling them to compete for prestigious job opportunities.

Izbrana dela | Important Works

Mobitel Academy, educational regional headhunting project (2001).

Establishment of Technology Network ICT (2004).

Foundation of Interdisciplinary Academic Study Programme in Multimedia (2014).

European Patent: A method of determining use of geodesically allocable objects; co-inventor (2018).

Izbrane nagrade | Selected Awards

2004 Teleinfos priznanje za dolgoletno oblikovanje programa prireditve | Teleinfo recognition for long-standing work in formation of event programme;

2010 Zlata plaketa Univerze v Ljubljani za izjemne zasluge | Golden Plaque of the University of Ljubljana;

2018 ZOTKS častni znak za dolgoletno delo na področju tehnične kulture | ZOTKS Honorary Badge for lasting contributions in the field of technical expertise



Ivan Bratko

- 1946** rojen v Ljubljani | Born in Ljubljana
- 1970** diplomira iz elektrotehnike | BSc in electrical eng., University of Ljubljana
- 1975** magistrira iz elektrotehnike | MSc in electrical eng., University of Ljubljana
- 1977** pol leta na Univerzi v Edinburghu | Half year at University of Edinburgh
- 1978** doktorira iz računalništva | PhD degree in Computer Science, University of Ljubljana
- 1985** ustanovi Laboratorij za umetno inteligenco | Set up AI lab at University of Ljubljana
- 1989** redni profesor | Full professor, University of Ljubljana
- 2000** redni član | fellow of EurAI, European Association for AI
- 2003** redni član SAZU | full member of Slovenian Academy of Sciences and Arts
- 2010** član Academia Europaea | fellow of Academia Europaea

Ivan Bratko velja za utemeljitelja raziskav iz umetne inteligence v Sloveniji. Bil je mentor vrsti slovenskih znanstvenikov s področja umetne inteligence, ki so zdaj uveljavljeni v svetu. Štirje njegovi doktorandi so prejeli Zlati znak Jožefa Stefana za najboljše doktorate v Sloveniji, dva pa nagrado EurAI za najboljše doktorate iz umetne inteligence v Evropi. Bil je dolgoletni vodja laboratorijskega za umetno inteligenco na Fakulteti za računalništvo in informatiko UL in na Institutu Jožef Stefan. Raziskuje na naslednjih področjih: strojno učenje, hevristične metode, programiranje v logiki, induktivno logično programiranje in kvalitativno modeliranje. Aplikativni vidiki tega dela so v medicini in robotiki. Njegova knjiga Prolog Programming for Artificial Intelligence je bila s štirimi izdajami in angleščini in s prevodi v druge jezike desetletja med vodilnimi učbeniki umetne inteligence in deklarativnega programiranja.



Bratkova knjiga Prolog Programming for Artificial Intelligence je prvič izšla leta 1986 (založba Addison-Wesley). Sledile so še tri izdaje, četrta leta 2012 (Pearson Education). Izšla je tudi v nemščini, francoščini, italijanščini, slovensčini, ruščini in japonsčini.

Bratko's book Prolog Programming for Artificial Intelligence was first published in 1986 (Addison-Wesley), followed by another three editions, the fourth in 2012 (Pearson Education). It has also appeared in German, French, Italian, Slovene, Russian and Japanese.

Ivan Bratko is a pioneer of Artificial Intelligence in Slovenia. He has supervised many Slovenian researchers who later became established scientists worldwide. He created and directed the AI laboratories at the Faculty of Computer and Information Sciences of Ljubljana University and Jožef Stefan Institute. His research interests include machine learning, heuristic search, logic programming, learning in logic, and qualitative reasoning. The areas of application of his work include robotics and medicine. His book Prolog Programming for Artificial Intelligence has appeared in four editions in English and has been translated to several other languages. Over the decades, it was among the leading textbooks for AI and declarative programming. Ivan Bratko was a visiting professor or scientist at the University of Edinburgh, The Turing Institute and Strathclyde University, Glasgow, Sydney University and University of New South Wales, Australia, Delft University, Alpen Adria University, Klagenfurt, Polytechnic University of Madrid, among others.

Izbrana dela | Important Works

Možina M, Žabkar J, Bratko I (2007) Argument based machine learning. Artificial Intelligence 171 (10-15), 922-937.

Šuc D, Vladošič D, Bratko I (2004) Qualitatively faithful quantitative prediction. Artificial Intelligence 158 (2), 189-214.

Bratko I, Mozetič I, Lavrač N (1990) KARDIO: a Study in Deep and Qualitative Knowledge for Expert Systems. MIT Press.

Izbrane nagrade | Selected Awards

1991 ambasador Republike Slovenije v znanosti | Ambassador in Science of Republic of Slovenia

2007 priznanje Michie-Turing za življensko delo | Michie-Turing award

2007 Zoisova nagrada za vrhunske znanstvene dosežke | Zois award for outstanding scientific achievements, highest award in science in Slovenia



Božidar Brudar

1939 rojen na Jesenicah | Born in Jesenice, Slovenia

1963 diplomira na oddelku za fiziko | Degree in physics at Faculty for natural sciences and technology University of Ljubljana

1973 magistrira | Master's degree in University of Ljubljana

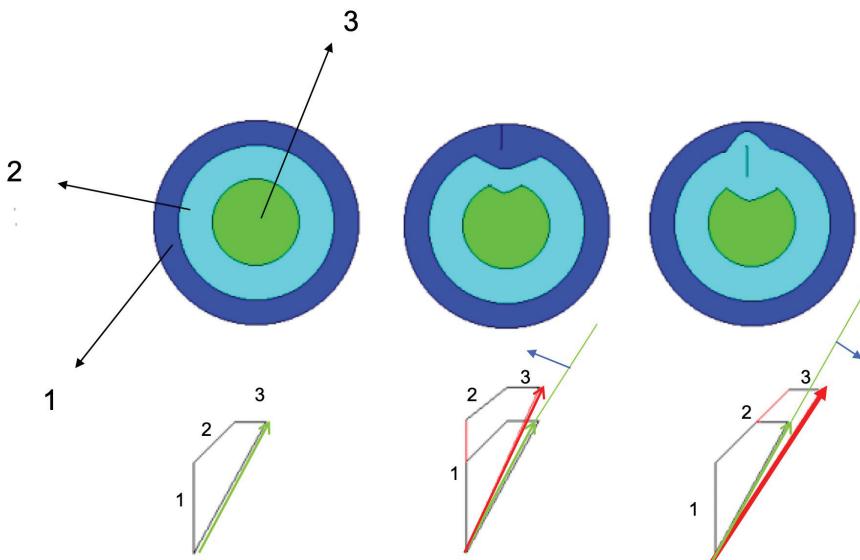
1977 doktorira | Doctorate, thesis on magnetic fields in ferromagnetic materials at Faculty for Electrical Engineering, University of Ljubljana

1964 profesor za fiziko | Physics teacher at the technical high school Jesenice

1969 raziskovalec | Researcher at the Research Department of the Iron & Steel Works Jesenice

1986 višji raziskovalec | Senior developer in RR Unit of Iskra Kibernetika in Kranj

Dr. Božidar je večino svojega aktivnega življenja posvetil raziskovalnemu delu v industriji. Zanimale so ga inovacije in matematično modeliranje tehnoloških procesov v metalurgiji. Posebno uspešen je bil pri izdelavi merilne naprave za optimalni razrez vročih jeklenih blokov v jeseniški valjarni Bela. Na področju matematičnega modeliranja procesov v metalurgiji se je ukvarjal z optimiziranjem ogrevanja jekla in s problematiko strjevanja jekla v kokilah. Kasneje je svoje raziskovalno delo posvetil defektoskopiji materiala z neporušitvenimi elektromagnetnimi metodami. Vpeljal je matematične metode za izračunavanje elektromagnetejnega polja v bližini defekta v feromagnethnih materialih. Svoje delo preusmerja na iskanje omejitev možnosti posameznih metod za odkrivanje napak v materialih. Posveča pa se tudi matematični statistiki in planiraju primera nega števila potrebnih meritev. Opozarja na napake pri zaključkih raziskovalnega dela, kadar principi za testiranje hipotez niso dovolj upoštevani.



Gostota magnetnega polja B v krožnem preseku valja v homogenem vzdolžnem izmeničnem magnetnem polju. Površinska in pod površinska razpoka povzročita spremembo v magnetnem pretoku po velikosti in fazi.

Magnetic field density B in the cross-section of a cylindrical profile in an axial homogenous a.c. magnetic field. The surface and the subsurface cracks are influencing the magnetic flux in its magnitude and phase.

Dr. Božidar Brudar has devoted most of his career to research work in the industry. He has mostly been interested in innovations and the mathematical modeling of technological processes in metallurgy. He had a major success in constructing a measuring device for the optimal cutting of hot steel blooms in the rolling mill of Jesenice Steel Works. In mathematical modeling of processes in metallurgy, he has focused on the problems of the optimal heating of steel blocks and the solidification of steel in molds. Later on, he shifted his research interest to nondestructive methods using electromagnetic fields. He introduced mathematical methods for the calculation of electromagnetic fields in the vicinity of defects in ferromagnetic materials. He is looking at the limitations of several methods in discovering defects in materials. He is also active in mathematical statistics in the planning of the necessary number of measurements. He has drawn attention to mistakes in the research results when the principles of testing hypotheses are not taken into account.

Izbrane dela | Important Works

Brudar B. (1982) The Electromagnetic field in the Neighborhood of a Defect in a Material, Research Techniques in Nondestructive testing V:169-238, Academic Press, London.

Brudar B (1984) Calculations of Three-dimensional a.c. Magnetic Field Near Defects in Ferromagnetic Bars, Research Techniques in Non Destructive Testing VII:77-114, Academic Press, London.

Brudar B. Smučarski skoki, Ljubljana 2018.

Izbrane nagrade | Selected Awards

1973 nagrada Sklada Borisa Kidriča za izume in tehnične izboljšave | Boris Kidrič Innovation Award

1983 nagrada Sklada Borisa Kidriča za matematično-fizikane vede | Boris Kidrič Award for Developments in Mathematics and Physics

2003 častni občan občine Jesenice | Honorary Citizen, Jesenice



Ilija Dimitrievski

1945 rojen v Tetovu | Born in Tetovo
Macedonia

1967 diplomira iz sinteze poliakrilatnih vodnih disperzij | BSc,
thesis on Sintesis of Polyacrilate Wather Dispersions

1987 magistrira iz Sineze poliuretanskih vodnih disperzij | Master's degree on Polyurethanes
Wather Dispersions

2001 doktorira iz reučevanja sekundarnih vezi v mešanicah polarnih kavčukov in poliuretanov z reološkimi metodami | PhD in Study of Secondary Network in Mixers of Polar Rubbers and Polyurethanes with Rheo-logical Methods, University of Ljubljana

1967 razvojni inženir | Developing engineer

1974 vodja razvojne skupine | Leader of developing group

1987 vodja razvoja in raziskav | Head of R&D department

2002 direktor | Director of R&D Institute Sava, Kranj

Dr. Ilija Dimitrievski je študiral na Fakulteti za kemijo in kemijsko tehnologijo Univerze v Ljubljani, smer anorganski materiali, diplomiral pa je pri prof. Ivanu Vizovišku na področju sinteze poliakrilatnih vodnih disperzij. Po zaposlitvi v Razvojno-tehnološkem institutu Sava Kranj je bil zaposlen na funkcijah od razvojnega inženirja, raziskovalca do direktorja instituta. V obdobju od leta 1969 je deloval na področjih razvoja PVC in poliuretanskega umetnega usnja, PVC plastisoli in sinteze poliuretanov v obliki raztopin in vodnih disperzij. Raziskoval je na področju mešanic elastomerov s poliuretani in z drugimi termoplasti, dinamičnih vulkaniziranih termoplastičnih elastomerov (TPV), drugih polimernih prevlek za protikorozisko in protiabrazjsko zaščito procesne opreme v kemijski industriji. Delal je tudi na področju energetskih objektov in čiščenja odpadnih voda, reologije elastomerov in polimernih mešanic, nanomaterialov in nanotehnologije.

Aktiven je bil na družbeno-političnem področju. Bil je predsednik Delavskega sveta Save, organov občine Kranj in Gospodarske zbornice na ravni Slovenije.



Dr. Ilija Dimitrievski, direktor Razvojnega instituta Savatech Kranj s sodelavci v letu 2005.

Dr. Ilija Dimitrievski, director of the R&D Institute Sava Kranj with coworkers in 2005.

Dr. Ilija Dimitrievski studied at the Faculty of Chemistry and Technology at the University of Ljubljana, Slovenia. His professional career started in 1969 at the Sava Rubber Factory in Kranj as a development engineer, where he continued as a researcher and later became director of the R&D Institute. He has worked on the development of PVC and PU synthetic leather, PVC plastisols, the synthesis of polyurethane water dispersions. His research involved studies of mixtures of elastomers with thermoplastic polyurethane, the dynamical vulcanization of thermoplastic elastomers, polymer layers for the anti-corrosive and anti-abrasive protection of processing equipment in the chemical industry, the research of the rheology of elastomers and polymeric mixtures, nanomaterials and nanotechnology in elastomers. He has presented his work at a number of scientific conferences, including Rub. Int. Conf., Paris 1990; 3rd AIM Conf. on Adv. Top. in Pol. Sci., Gargnano 1992, Italy; 5th Eur. Pol. Fed. Symp. on Pol. Mat., Baden-Baden, 1992. EPF 92; Int. Conf. on Adv. Pol. Mat., Dresden, 1993; 5th Eur. Pol. Fed. Symp. on Pol. Mat., Basel, 1994; 1st Int. Conf. on Mech. of Time Dep. Mat., Ljubljana, 1995.

Izbrana dela | Important Works

I. Dimitrievski and T. Malavašič (1992) In situ prepared IPN's form nitrile rubber and polyurethane ionomers, European Polymer Federation Symposium on Polymeric Materials, Baden-Baden.

I. Dimitrievski, Z. Šusterič, T. Malavašič (1990) Study of some elastomer-polyurethane ionomer alloys, Rubber International Conference IRC 90, Paris.

Izbrane nagrade | Selected Awards

- 2014 izvolitev za rednega člana IAS
- 2010 Velika plaketa MOK za delovanje na področju tehnološkega razvoja, znanosti in tehnologij ter aktivno delovanje Makedonskega kulturnega društva sv. Ciril in Metod iz Kranja
- 2000 Medalja sv. Jovana Kukuzela MIN. za izseljence R. Makedonije
- 2008 izvolitev za izrednega člana IAS
- 1987 Srebrni znak Sava Kranj
- 1984 Listina Mestne občine Kranj(MOK) in nagrada Janeza Puharja ORS Kranj
- 1983 Red dela s srebrnim vencem SFRJ



Robert Dominko

1971 rojen v Varaždinu (Hrvaška) | Born in Varaždin (Croatia)

1997 diplomira iz modeliranja kemijskih reaktorjev | Undergraduate degree, thesis on modelling of chemical reactors, University of Ljubljana

2002 doktorira na temo litij ion-skih akumulatorjev | PhD on lithium ion batteries, University of Ljubljana

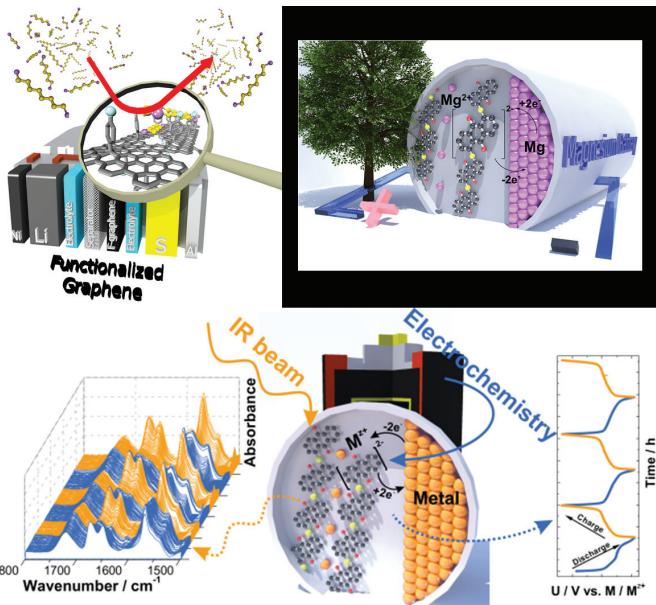
2010 gostujoči profesor | Visiting professor, Universite de Picardie Jules Verne, Amiens, France

2012 habilitacija na področju znanosti o materialih | Habilitation in materials science, University of Ljubljana

2015 izredni profesor | Associated professor, University of Ljubljana

2016 znanstveni svetnik | Research professor, National institute of Chemistry, Ljubljana

Dr. Dominko ves čas raziskovalne kariere posveča razvoju materialov in karakterizacijskih metod za napredne akumulatorske sisteme. Osredotoča se na sintezo novih aktivnih spojin in na razvoj metod, ki omogočajo boljše razumevanje delovanja sodobnih akumulatorjev. Pri svojem delu odkriva nove možnosti shranjevanja naboja na osnovi elektrokemijskih procesov. Njegovo raziskovalno delo je usmerjeno v bazično znanost, s fokusom na odkritjih, ki bi bila praktično uporabna. Pristop odkrivanja neznanega z uporabno vrednostjo mu omogoča uspešno koordiniranje evropskih projektov in sodelovanje z industrijo širom po svetu. Dominko je dobitnik priznanja HONDA Initiation Grant za inovativno idejo, ki jo nadgrajuje v smeri razvoja prototipnih akumulatorjev. Na Kemijskem inštitutu v Ljubljani vodi raziskovalno skupino na področju razvoja akumulatorjev, ki se uvršča med vodilne skupine v svetu s področja razvoja baterij.



Delo na novih naprednih materialih skupaj z novimi ali izboljšanimi elektrokemijskimi sistemmi v kombinaciji z naprednimi karakterizacijskimi tehnikami so privlačne teme za številne industrijske partnerje širom po svetu.

Working on new advanced materials along with novel or improved electrochemical systems combined with advanced characterization techniques, are attractive topics for many industrial partners all over the world.

Dr. Dominko's research focuses on the development of novel active materials and characterization methods for advanced battery systems. He works on the synthesis of advanced materials for batteries and on the development of models that improve the understanding of modern battery systems. Recently, his research has focused on the development of new electrochemical storage components and systems. His research uses basic science approaches but with a focus on the application of results. The concept of discovering the unknown with high practical value allows him to successfully coordinate European projects and cooperate with global industrial partners. Dominko won the HONDA Initiation Grant for an innovative proposal that he has recently upgraded to create prototype batteries. He leads a world-leading research group in the field of batteries at the National Institute of Chemistry in Ljubljana.

Izbrane dela | Important Works

AA. Vizintin, J. Bitenc, A. Kopac Lauhar, K. Pirnat, J. Grdadolnik, J. Stare, A. Randon-Vitanova, R. Dominko, *Nature Commun.*, 9, Article number: 661 (2018)

Dominko, R; Bele, M; Gabersek, M; Remskar, M; Hanzel, D; Pejovnik, S; Jamnik, J. J. *Eletrochim. Soc.*, 152, A607-A610 (2005)

Sirisopanaporn C., Masquelier C., Bruce P. G., Armstrong A. R., Dominko R., *J. Am. Chem. Soc.* 133, 1263 (2011).

Izbrane nagrade | Selected Awards

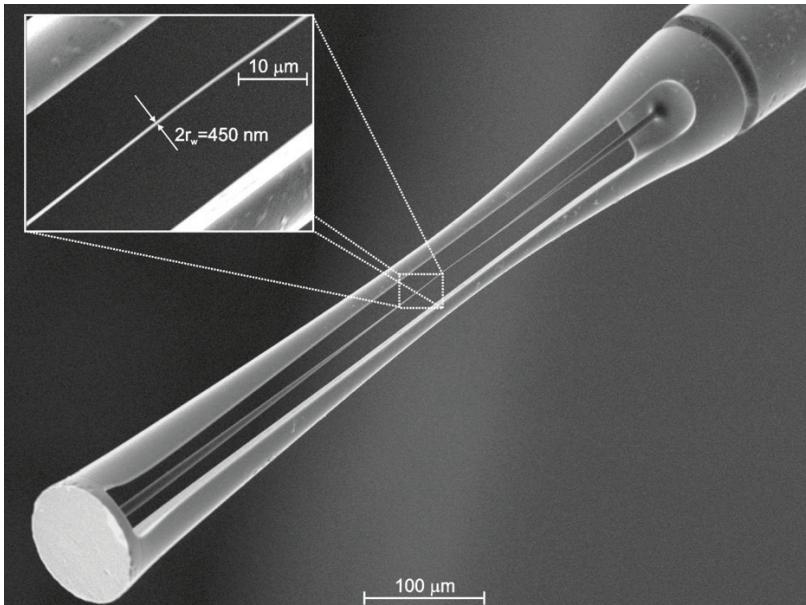
- 2018 Zoisova nagrada za vrhunske dosežke | Zois Award for outstanding achievements in science
- 2013 nagrada Honde za prodorno idejo | Honda Initiation Grant
- 2012 Preglova nagrada za izjemne raziskovalne dosežke | Pregl Award for outstanding contribution to chemistry
- 2012 Prometej znanosti | Prometheus Award for excellence in science communication in Slovenia
- 2004 Zlati znak Jožef Stefan | Jozef Stefan Golden Emblem Prize Award



Denis Đonlagić

- 1998** doktorira | PhD in the field of low frequency acoustical sensors, University of Ljubljana
1998 docent | Assistant Professor at the University of Maribor
2000 doktorira | PhD in the field of optical fiber sensors, University of Strathclyde, Glasgow, UK
2001 raziskovalec | Research and development scientist at Corning Inc., USA
2003 izredni profesor | Associate Professor, University of Maribor
2008 redni professor | Full Professor, University of Maribor

Raziskovalno in razvojno delo Denisa Đonlagiča sodi na področje senzorjev in fotonskih tehnologij. Bolj specifično se ukvarja z optičnimi senzorji na osnovi optičnih vlaken, opto-elektronskimi sistemi za branje in pretvorbo optičnih signalov, ki jih generirajo optični senzorji, ter z zgradbo in delovanjem posebnih optičnih vlaken. Posebno pozornost je v svoji karieri namenil razvoju tehnologij, ki omogočajo učinkovito mikro-obdelavo in pretvorbo optičnih vlaken v miniaturne in funkcionalne pasivne optične naprave. Rezultate svojega dela skuša vztrajno prenašati v različne aplikacije, kar se odraža v dolgoročnem sodelovanju z različnimi slovenskimi in tudi tujimi podjetji. Denis Đonlagić je bil med letoma 2006 in 2017 tudi partner in tehnični svetovalec pri podjetju Optacore d.o.o., ki ga je leta 2017 prevzelo podjetje Lumentum iz ZDA (podjetje danes nadaljuje s proizvodnjo posebnih vlaken v Ljubljani).



Optična nano-žička na vrhu optičnega vlakna, konfigurirana v Fabry-Perotovem interferometru. Predstavlja primer občutljivega senzorja za merjenje majhnih sprememb v lomnem kolenčku. Senzor je uporaben za slednje sprememb v zelo tankih plasteh, kot so aptamerne plasti v bio-medicinskih senzorjih.

Optical nanowire configured into a Fabry-Perot interferometer, created at the tip of an optical fiber. This is a highly sensitive sensor that can be used for sensing in refractive index changes in very thin layers, such as aptamer layers used in biomedical sensors.

Denis Đonlagić's field of work includes photonics systems, sensors, and passive micro-optomechanical devices. He has in-depth research and development experience in optical fibers and waveguides, fiber optic sensors, optoelectronics interrogation/signal processing systems, and different micromachining processes related to the reforming of optical fibers. The results of this work have been the basis for continuous collaboration with leading global leading industrial partners in the field of sensors and photonics technologies. Denis Đonkagić was also between 2006 and 2017, a shareholder and technical adviser at Optacore d.o.o., a privately owned SME dedicated to the production of specialty fibers and fiber manufacturing equipment (in 2017 Optacore was acquired by Lumentum Inc., USA and continues its operations in Ljubljana, Slovenia).

Izbrana dela | Important Works

Đonlagić D, Multimode optical fiber with low differential mode delay, US.Pat. 8290323B2.

Njegovec M, Đonlagić D, Methods of driving laser diodes, optical wavelength sweeping apparatus, and optical measurement systems, US.Pat. 9948061B2.

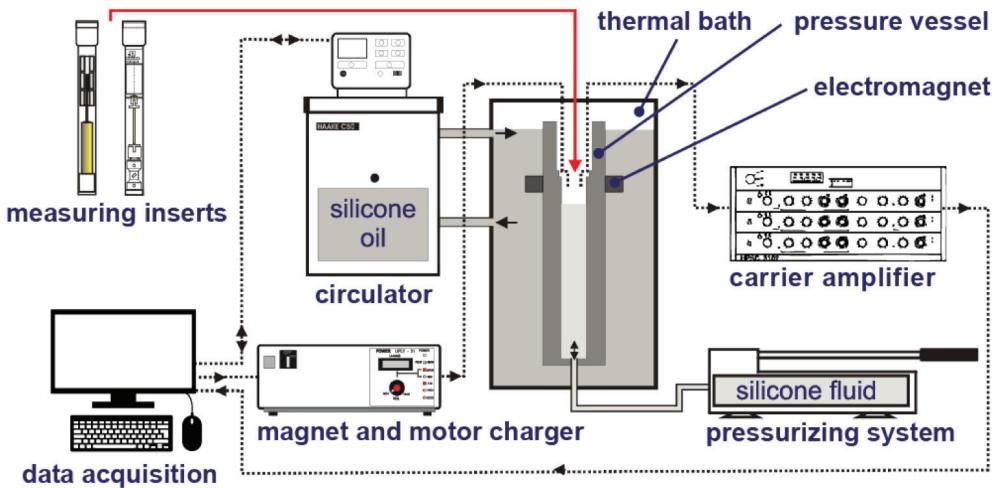
Đonlagić D, Pevec S. Fiber-optic measurement system and methods based on ultra-short cavity length Fabry-Perot sensors and low resolution spectrum analysis, US.Pat. 9677933B2.



Igor Emri

- 1952** rojen v Murski Soboti | Born in Murska Sobota, Slovenia
1974 diplomira s področja mehanike | Degree in mechanics, University of Ljubljana
1977 magistrira | Master's, University of Ljubljana
1981 doktorira s področja mehanike časovno odvisnih materialov | Doctorate on mechanics of time dependent materials, California Institute of Technology/University of Ljubljana
1983 docent | Assistant professor, University of Ljubljana
1985 gostujuč raziskovalec | Visiting scientist, California Institute of Technology, Pasadena, USA
1996 redni profesor | Full professor, University of Ljubljana
2001 gostojoč profesor | Visiting Professor, California Institute of Technology, Pasadena, USA.

Dr. Emri je razvil inovativen teoretično-eksperimentalni pristop, znan kot model Knauss-Emri, za preučevanje nelinearnega vedenja časovno odvisnih materialov. Njegova trenutna raziskovalna dejavnost je osredotočena na nelinearno časovno odvisno obnašanje disipativnih sistemov s poudarkom na obnašanju trdnih polimerov in njihovih nano-, mikro- in makrokompozitov ter zrnatih sistemov. Je eden od ustanoviteljev in glavni urednik mednarodne revije »Mechanics of Time- Dependent Materilas«, ki jo izdaja Springer. Je tudi redni član (fellow) Društva za eksperimentalno mehaniko (ZDA), Ruske inženirske akademije, Ruske akademije naravoslovnih znanosti, Evropske akademije znanosti in umetnosti, Evropske akademije znanosti in Slovenske akademije znanosti in umetnosti. Bil je predsednik Znanstvenega odbora za področje tehnike pri »Science Europe«, predsednik ameriškega Društva za eksperimentalno mehaniko in Internacionalnega komiteja za relogijo. Dr. Emri je in je bil gostujuč profesor na številnih priznanih univerzah, med njimi tudi na California Institute of Technology, Pasadena, ZDA.



Unikatni merilni sistem za proučevanje hkratnega vpliva temperature in tlaka na vedenje časovno odvisnih materialov, v literaturi znan kot "CEM measuring system" (Springer Nature Handbook of Experimental Solid Mechanics, 49-96, 2008).

A unique measurement system for studying the effect of temperature and pressure on the behavior of time-dependent materials, in the literature known as the "CEM measuring system" (Springer Nature Handbook of Experimental Solid Mechanics, 49-96, 2008).

Dr. Emri has developed an innovative theoretical-experimental approach, known as the Knauss-Emri model, to study the non-linear behavior of time-dependent materials. His current research activities are focused on the non-linear time-dependent behavior of dissipative systems, emphasizing the behavior of solid polymers and their nano-, micro-, and macro-composites and granular systems. He is one of the founders and Editor-in-Chief of the international journal »Mechanics of Time-Dependent Materials, «published by Springer Nature. He is a fellow grade member of the Society of Experimental Mechanics (USA), Russian Academy of Engineering, Russian Academy of Natural Sciences, European Academy of Sciences and Arts, European Academy of Sciences, and Slovenian Academy of Sciences and Arts. He was Chairman of the Science Europe Scientific Committee on Engineering and a past president of the Society of Experimental Mechanics and the International Committee on Rheology. Dr. Emri is and was Visiting Professor at many renowned universities, including the California Institute of Technology, Pasadena, ZDA.

Izbrana dela | Important Works

Non-linear viscoelastic model Knauss-Emri (1981) Computers & Structures 13: 123-128

(1987) Polymer Engineering & Science 27: 86-100, and (2008) Springer Handbook of Experimental Solid Mechanics, 49-96, 2008.

Breakthrough in vibro-acoustic insulation, European patent office, München: (2014) EP 12006059 (A1), and (2015) EP2700838 (B1).

I. Emri, A. Voloshin (2016) Statics - Learning from Engineering Examples, Springer Nature.

Izbrane nagrade | Selected Awards

1997 Kapitsa Medal, Russian Academy of Natural Sciences, Moscow

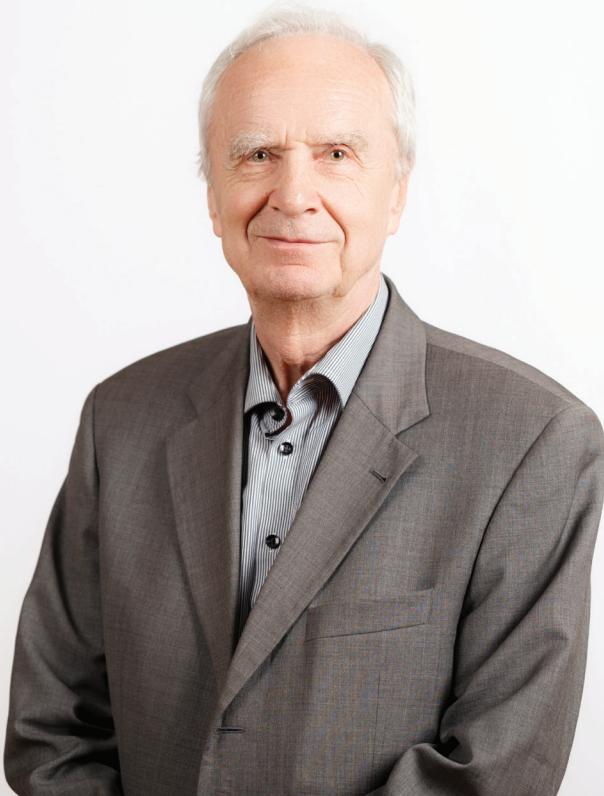
2000 Honoured Engineer of the Russian Federation, Russian Academy of Engineering, Moscow

2001 ambasadør Republike Slovenije v znanosti | Ambassador of Science of the Republic of Slovenia

2010 Lazan Award, The Society of Experimental Mechanics, USA

2011 Golden Emblem of the Russian Academy of Engineering

2017 S. Nemat-Nasser Award, The Society of Experimental Mechanics, USA



Peter Fajfar

1943 rojen v Ljubljani | Born in Ljubljana

1966 diplomira iz gradbeništva | Degree in civil engineering, Univ. of Ljubljana (UL)

1967 zaposlitvev v operativi pri SGP Grosuplje | Joins construction firm SGP Grosuplje

1969-2018 zaposlitev na Fakulteti za gradbeništvo in geodezijo Univerze v Ljubljani | Employed at Faculty of civil and geodetic engineering (FGG UL)

1972, 1974 magistrira, doktorira | MSc, PhD (FGG UL)

1985-1987 dekan | Dean (FGG UL)

1994, 1995, 2006, 2009 gostujući profesor | Visiting professor Mc Master Univ. Hamilton, Stanford Univ., Bristol Univ., Canterbury Univ. Christchurch

2003 urednik | Editor Earthquake Engineering Structural Dynamics (Wiley)

Akademik Fajfar dela na področju potresnega inženirstva, kjer raziskuje vpliv potresov na obnašanje gradbenih konstrukcij. Metode, ki jih je s sodelavci na Inštitutu za konstrukcije, potresno inženirstvo in računalništvo na Fakulteti za gradbeništvo in geodezijo Univerze v Ljubljani razvil za analizo gradbenih konstrukcij, so postale eno temeljnih orodij v raziskavah potresne odpornosti v svetu. Fajfarjevi znanstveni rezultati imajo velik praktični pomen. Njegovo delo je močno vplivalo na razvoj predpisov in standardov v Sloveniji in Evropi. S svojimi raziskovalnimi dosežki, razvojem programske opreme, pedagoškim in strokovnim delom je odločilno prispeval k ekonomični zagotovitvi nadpovprečno višoke stopnje potresne varnosti večine novejših pomembnih objektov v Sloveniji.



Po potresih je treba proučiti njihov vpliv na gradbene konstrukcije in ugotoviti razloge za opaženo obnašanje posameznih objektov. Fajfar je v ta namen obiskal več območij, ki so jih prizadeli močni potresi. Na sliki je zrušena stolpnica po potresu v Čilu leta 2010.

After earthquakes, it is necessary to study their impact on building structures and identify the reasons for the observed behavior of individual buildings. To this end, Fajfar visited several areas affected by strong earthquakes. The photo shows a collapsed high-rise building after the earthquake in Chile in 2010.

Prof. Fajfar works at the University of Ljubljana in the field of earthquake engineering. He focuses his research on the impact of earthquakes on the behaviour of buildings and civil engineering structures. Methods that he developed with his colleagues to analyze building structures have been implemented in the European standard Eurocode 8 and have become one of the essential tools in research and practice of earthquake-resistant design and assessment worldwide. He is one of the most cited researchers in earthquake engineering and a member of two national academies in Slovenia, the European Academy of Sciences (Belgium), and the US National Academy of Engineering. For 13 years, he was one of three editors of *Earthquake Engineering and Structural Dynamics*, the journal with the highest impact factor in earthquake engineering. Together with Prof. Helmut Krawinkler from Stanford University, he organized three highly successful international workshops in Bled, where the most prominent researchers and practitioners set the directions for improvements in seismic design.

Izbrana dela | Important Works

Fajfar P (1976) EAVEK (program za elastično analizo večetažnih konstrukcij), FAGG, Univerza v Ljubljani.

Fajfar P (1999) Capacity spectrum method based on inelastic demand spectra. *Earthquake Engineering & Structural Dynamics* 28(9): 979-993.

Fajfar P (2000) A nonlinear analysis method for performance-based seismic design. *Earthquake Spectra* 16(3): 573-592.

Izbrane nagrade | Selected Awards

1989, 1993 izredni, redni član SAZU | Associate, full member, Slovenian Acad. of Sciences and Arts

1995 nagrada RS za raziskovalno delo | Republic of Slovenia award for academic work

2013 nagrada za življensko delo, IZS | Award for lifetime achievements, Chamber of engineers of Slovenia

2015 Zoisova nagrada za življensko delo | Zois Award for lifetime achievements

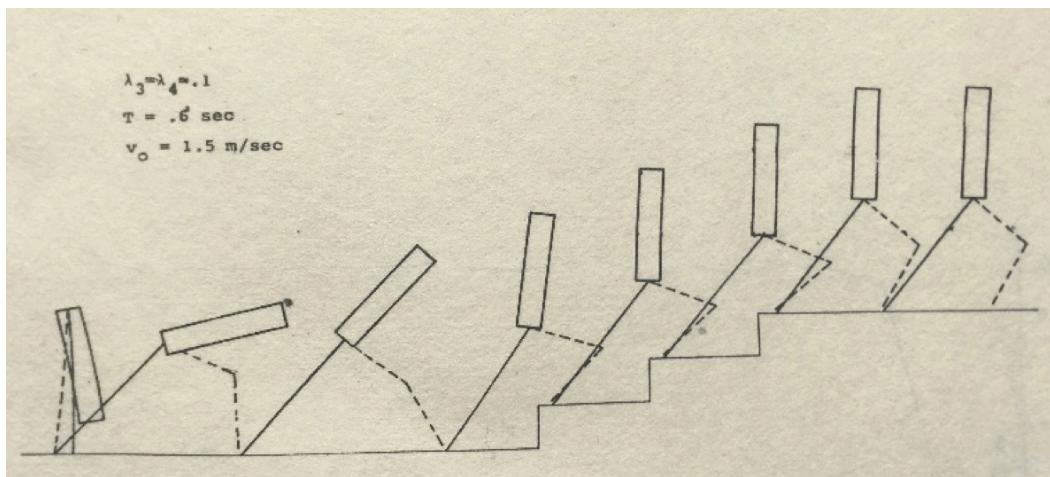
2018 Ambroseys lecture

2018 zunanji član | Foreign member, US National Academy of Engineering



Ferdinand Gubina

- 1963** diplomira z izdelanim modelom elektronske celice, ki zmore ponoviti reobazo, ki so jo izmerili na živem nevronu | Degree of electrical engineering with an electronic model of the nerve cell, which exhibited the rheobase, actually measured on a living neuron
- 1970** Fulbrightova štipendija | Fullbright scholarship, Ohio State university
- 1972** razvoj koncepta dvonožne hoje, ki ga je leta 2014 uporabil Boston Dynamic za izdelavo dvonožnega robota | Invented and developed the concepts of bipedal locomotion
- 1978** nadzoroval preskušanje komponent | Supervision of component tests, Krško Nuclear Power Plant
- Na začetku delovne kariere je na Elektroinštitutu Milan Vidmar ustanovil Oddelek za vodenje in delovanje Elektroenergetskega sistema (EES), ki še danes deluje. Izdelal je koncept vodenja slovenskega EES-a. Vodil je projekt avtomatizacijo hidroelektrarn na Dravi. Leta 1978 je pri Westinghousu nadziral preskušanja opreme za slovensko jedrsko elektrarno Krško, kjer je zahteval popravila za okrog tretjino naprav. Izvedel je ustanovitev Slovenskega društva CIGRE in njegovo umestitev v mednarodno CIGRE (Committee international pour grand reseau electric) v Parizu. Pridružil je Elektrotehniško zvezo Slovenije evropski organizaciji EUREL. Napisal je dva učbenika: Vodenje EES s soavtorjem A. Ogorelcem, 1997 in Delovanje EES, 2006. Sodeloval je pri Slovarju strokovnih izrazov za trg električne energije. Kot predsednik Elektrotehniške zveze Slovenije je postavil projekt obnove elektrotehniških predpisov, oblikoval Glosar za elektrotehniško izrazje in prevedel nad sto tehniških standardov. Sodeloval je pri oblikovanju Slovenskega tehniškega slovarja 2 pri SAZU.



Izvedba koncepta bipedalne hoje, uporablja jo Boston Dynamics. Učinkovitost zamisli prikazuje shematični start modela na sto metrov in takoj nato prehod na stopnice z lepo vidno stabilnostjo.

The vital characteristics of the bipedal control concept are shown for a hundred metre start of a runner transiting to stairs climbing after a few steps, which has been proven by the Boston dynamic robot.

As a Fulbright scholar at the Ohio State University (1970), I lectured and conducted the laboratory exercises on Electric machinery (Energy Conversion) using a Russian book as no English book on electric machinery was available. I invented and developed the concepts of bipedal locomotion and published them in the IEEE Transaction on BME, "On the Dynamic Stability of Biped Locomotion," No. 2, 1974, which have been used by Boston Dynamics to construct the bipedal robot presented in 2016 in Boston. With a colleague, I founded the Slovenian CIGRE organization and integrated it into the CIGRE International committee for large power systems, located in Paris, serving on its organizing and executive committees. I worked as a Slovenian representative in 1978 with Westinghouse in supervising the tests of the Slovenian nuclear power plant components manufactured in the US. As chairman of the Slovenian electrotechnical society, I ensured it became more integrated and active within the European Union of electrical engineers EU-REL, within which we cooperate regarding standardization in the field of electricity.

Izbrana dela | Important Works

Omahen P., Gubina F. (1992) Simulations and field tests of a reactor coolant pump emergency start-up by means of remote gas units, IEEE Trans. on Energy Conversion 7(4):691-697.

Gubina F., Golob R., Debs A.S. (1996) Fast contingency evaluation..., Jour. of El. Power and Energy Systems 18(6):377.

Halilčević S., Gubina F. (1994) An On-line Determination of the Ready Reserve Power, IEEE Trans. on Power Systems 14(4):1514-1519.

Izbrane nagrade | Selected Awards

1963 Univerzitetna Prešernova nagrada za Model živčne celice | University of Ljubljana, Prešeren Award for students

1972 Vratislav Bedjaničeva industrijska nagrada za doktorsko delo | Bedjanič award for PhD work

2006 IEEE Power Engineering Society Prize paper award

Industry ISKRA plaque for the project of River power plants automation
Distinguished member CIGRE Paris

Life Senior member, IEEE, N.Y.
Slovenian CIGRE-CIRED life achievement award

Elektroinstitute Milan Vidmar plaque



Matjaž Gams

1954 rojen v Ljubljani | born in Ljubljana, Slovenia

1978 diplomira iz generiranja šahovskih končnic | Undergraduate degree, thesis on generating chess endgames, University of Ljubljana

1989 doktorira iz uporabe mnogoterih modelov v strojnem učenju | Doctorate on the use of multiple models in machine learning, University of Ljubljana

2004 vodja odseka za inteligentne sisteme | Head of department of Intelligent Systems

2011 redni profesor | Full professor, University of Ljubljana

2014 redni član IAS | Regular member of IAS

2017 državni svetnik za raziskovanje | National councilor for science, Slovenia

Dr. Matjaž Gams je eden od pionirjev računalništva in umetne inteligenčne v Sloveniji, njegov mentor od srednje šole naprej je prof. Ivan Bratko. Ukvarya se s širšim področjem informacijske družbe, računalništva in informatike, predstavitve in uporabe znanja in posebej strojnega učenja. Interdisciplinarno se ukvarja z demografijo, razvojem civilizacij, varovanjem okolja, poslovno inteligenco, kognitivnimi znanostmi. Njegov moto je: "Več stroke in inženirstva v odločanje in manj politike in ideologije v stroku in inženirstvo". Kot državni svetnik si aktivno prizadeva za uveljavitev mota v vseh zakonih in srečanjih v Državnem svetu in drugih združenjih. Soustanovil in vodil je vrsto društev: SATE-NA, ACM Slovenija, DKZ (kognitivna znanost) in je bil eden od najbolj aktivnih pri ustanovitvi IAS. Trenutno je vodja odseka za inteligentne sisteme na IJS.



Leta 2018 je dr. Gams predaval o nevarnosti avtonomnih orožij v palači OZN, Ženeva.

In 2018 Professor Gams presented an invited lecture about the danger of autonomous weapons at UN, Geneva.

Professor Matjaž Gams researches the information society, civilization, computer science and informatics, artificial intelligence, and machine learning. He has held several national and international positions. Currently, he heads the Department of intelligent systems at the Jožef Stefan Institute, coordinates computer departments, is a member of the scientific council at JSI, a member of IFIP, and national councilor for science. Recently he handled the introduction of autonomous cars in Slovenia, wrote the national programme for electronic and mobile health, published the White book of Slovenian demography, and is studying the longevity of human civilization – according to the modified Drake equation, it will be from 1000 to 10.000 years unless we expand to other planets. His major scientific discovery is the principle and paradox of multiple knowledge, indicating that interactions are stronger than algorithms or equations (more heads know more).

Izbrane dela | Important Works

M. Gams, I. Y-H Gu, A. Härmä, A. Munoz, V. Tam (2019) Artificial intelligence and ambient intelligence. Journal of Ambient Intelligence and Smart Environments 11:1.

D. Nau, M. Luštrek, A. Parker, I. Bratko, M. Gams (2010) When is it better not to look ahead? Artif. Intell.

M. Gams (2001) Weak intelligence: through the principle and paradox of multiple knowledge, Huntington: Nova Science.

Izbrane nagrade | Selected Awards

- 2011 1. Taras, prenos v prakso | 1st, Taras, best industry
- 2013 1. EVaAL, prepoznavanju aktivnosti in padcev | 1st, EVaAL comp., activities and falls
- 2014 1. iz kont. Evrope, Tricorder, domači zdravstveni sistem | 1st cont. Europe, Tricorder, home health system
- 2018 1. 11. Mednarodni konf. o prenosu tehnologij | 1st, Technology transfer
- 2018 1. in 2., tekmovanje Sussex-Huawei, konf. A* UBI-COMP | 1st, 2nd, Sussex-Huawei competition, A* conference UBICOMP



Peter Glavič

- 1940** rojen v Ljubljani | Born in Ljubljana
1964 diplomira iz kemijske tehnologije | Degree in chemical technology
1968 doktorira iz kemije | PhD in chemistry
1968 zaposlitve v industriji | Employed in industry
1977 profesor na Univerzi v Mariboru | Professor at the University of Maribor
1987 prorektor | Vice rector
1990 član slovenskega parlamenta | Member of Slovenian parliament
2008 zaslužni profesor | Professor Emeritus

Dr. Glavič je diplomiral iz kemijske tehnologije in ekonomije, magistriral in doktoriral pa iz kemije na Univerzi v Ljubljani. Služboval je na Institutu Jožef Stefan, v Sladkogorski tovarni kartona in papirja je bil vodja proizvodnje, v Tovarni dušika Ruše pa vodja Službe za kontrolo kakovosti in raziskave. V obdobju 1977–2007 je delal kot profesor kemijske tehnike na Univerzi v Mariboru, kjer je sedaj zaslužni profesor. Na tej univerzi je ustanovil Laboratorij za procesno sistemsko tehniko in trajnostni razvoj, ki se je uveljavil v evropskem in svetovnem merilu. Dolga leta je bil prodekan Fakultete za kemijo in kemijsko tehnologijo, v letih 1987–1989 pa tudi prorektor za raziskovalno dejavnost Univerze v Mariboru. Uvajal je metodologijo znanstvenega dela v Mariboru in postavil temelje znanstvenemu delu na univerzi. Objavil je več kot 100 znanstvenih člankov, 20 učbenikov in priručnikov, prevedel je 32 standardov. Za svoje delo je prejel Red dela s srebrnim vencem, nagrado Republike Slovenije za živiljensko delo v visokem šolstvu, priznanje Evropske zveze za kemijsko tehniko in zlato plaketo Univerze v Mariboru.



V novejšem času se dr. Glavič ukvarja s trajnostnim razvojem in sodeluje pri izobraževanju o odgovorni porabi in proizvodnji.

Recent activities of Dr. Glavič are focused on sustainable development, where he collaborates in organizing education on responsible consumption and production.

Izbrana dela | Important Works

P. Glavič, Z. Kravanja, and M. Homšak (1988) Heat Integration of Reactors I Criteria for the Placement of Reactors into Process Flowsheet, Chem. Eng. Sci. 43, 593-608.

J. Petek and P. Glavič (1996) An integral approach to waste minimization in process industries, Resour. Conserv. Recy. 17 169–188.

P. Glavič and R. Lukman (2007) Review of sustainability terms and their definitions, J. Clean Prod. 15 1875-1885.

Izbrane nagrade | Selected Awards

2013 nagrada za dolgoletne dosežke v uporabi računalnika za procesno tehniko | Award for Long Term Achievements in Computer Aided Process Engineering, the European Federation of Chemical Engineering

2010 nagrada za življensko delo v visokem šolstvu | Award for Life Achievement in Higher Education, Republic of Slovenia

1990 Zlata plaketa | Gold Plaque, University of Maribor

1979 Red dela s srebrnim vencem | Decoration of Order with Silver Garlan

Professor Glavič studied chemical technology and economics and earned his master's and doctoral degrees in chemistry. He spent the first nine years of his career in the paper, chemical, ceramics, and metallurgical industries, where he held various managerial positions. He then moved from industry to academia and served thirty years as a Professor of Chemical Engineering at the University of Maribor. His research has focused on process systems engineering, environmental engineering, and sustainable development. He has participated in many international projects financed by the European Union and NATO. At University, he also served as a vice-rector. For eight years, he was a member of the Slovenian Parliament. He has been the chair of several professional bodies in the Slovenian Chemical Society and Society of Economists. He was president and vice-president of the Slovenian Academy of Engineering. He has published over a hundred scientific papers and presented over ninety papers at international conferences.



Robert Golob

- 1967** rojen v Šempetu pri Gorici | Born in Šempeter pri Gorici, Slovenia
1989 diplomira iz vodenja elektroenergetskih sistemov | Degree in power systems control, University of Ljubljana
1994 doktorira iz vodenja elektroenergetskih sistemov | PhD on power systems control, University of Ljubljana
1996 docent | Assistant professor, University of Ljubljana
1999 državni sekretar za energetiko | Secretary of State for Energy, Ministry of Economy, Slovenia
2002 ustanovi prvo podjetje IBES | Founds his first company IBES
2006 izredni profesor | Associate professor, University of Ljubljana
2006 predsednik uprave GEN-I | Chief Executive Officer, Gen-I

Dr. Golob je svojo poklicno pot začel kot mladi raziskovalec pri prof. dr. Ferdinandu Gubini na Fakulteti za elektrotehniko Univerze v Ljubljani, kjer se je večinoma posvečal uvedbi novih metod na področju vodenja elektroenergetskih sistemov. Med postdoktorskim študijem na Georgia Institute of Technology se je prvič seznanil z modeli za deregulacijo elektroenergetskih sistemov. Po vrnitvi v Slovenijo je postal eden izmed pionirjev na področju trga električne energije ter ustanovil Laboratorij za energetske strategije na Univerzi v Ljubljani. Vodil je proces pogajanja za vstop v EU na področju energetike in kot državni sekretar za energetiko ključno vplival na sprejem temeljnih zakonov za uvedbo tržnih načel ter preobrazbo energetskega sistema Slovenije v napredno tržno panogo. Ustanovil je več podjetij, med katerimi posebej izstopa družba Gen-I, ki je danes eden najbolj cenjenih trgovcev električne energije na evropskem energetskem trgu in najbolj zaupanja vreden dobavitelj energije v Sloveniji. Golob je eden od vodilnih strokovnjakov za področje energetike v Sloveniji.



Trajnostni energetski krog (TEK) omogoča vzpostavitev možnosti shranjevanja električne energije, pridobljene iz obnovljivih virov energije, in upravljanje hranilnikov energije v mikro omrežju na način, ki zmanjšuje vplive na elektrodistribučni sistem in pokriva konice porabe električne energije.

The sustainable energy cycle (SEC) establishes the possibility of storing electricity obtained from renewable sources and manages energy storage units in a microgrid to reduce the impacts of the electricity distribution system and cover electricity consumption peaks.

Dr. Robert Golob is the President of GEN-I's Management Board and a pioneer in the deregulation of the energy sector in Southeast Europe. During his current term of office, he is leading a comprehensive programme aimed at the digitalization of GEN-I's operations and the transformation of business processes based on big data analytics. His professional work focuses on searching for new solutions relating to the connectivity of devices (Internet of Things) and the decarbonization of the energy sector. Emphasis is placed on developing a digital platform that will allow system operators to merge diversified production technologies and the conversion and storage of energy by users to enable market flexibility. The primary emphasis is on simple, customer-centric tools for effective energy management and integrating such devices in smart grids. His work within the GEN-I Group is complemented by developing new, innovative business models that provide users the simple and affordable transition to smart, environmentally sustainable technologies.

Izbrana dela | Important Works

Golob, Gubina, Debs (1996). Improved adjoint network algorithm for online contingency analyses. Electric Power Systems Research.

Golob, Štokelj, Grgič (1998). Neural network based water inflow forecasting. Control Engineering Practice.

Bartelj, Paravan, Gubina, Golob (2010). Valuating risk from sales contract offer maturity in electricity market. International Journal of Electrical Power & Energy Systems.

Izbrane nagrade | Selected Awards

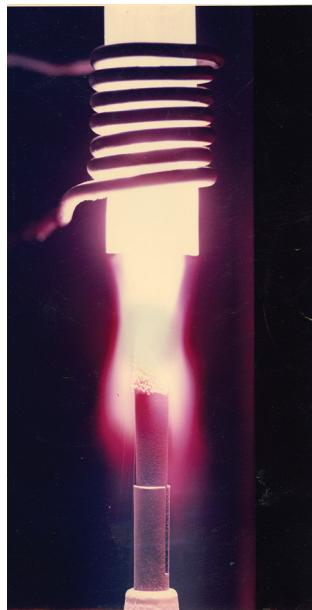
- 1994** Fullbright scholarship, Georgia Institute of Technology Atlanta
- 2009** Award for the contribution to the development of the Slovene Power System, CIGRE-CIRED
- 2012** Nomination to the Personality of the year, Newspaper Delo
- 2016** Manager of the year for Eastern Europe, CEO Magazine
- 2018** Prize for the entrepreneurial and management achievements, Chamber of Commerce and Industry



Igor Grabec

- 1962** diplomira iz tehničke fizike |
Degree in technical physics
1968 magistrira iz fizike | MSc in Physics
1971 doktorira iz fizike | PhD in Physics
1971 docent za fiziko na UL-FS | Assistant professor for physics UL-FME
1981 redni profesor na UL-FS | Full professor for physics UL-FME
1995 izvolitev v SAZU | Election to SASA
1996 izvolitev v IAS | Election to EAS
2007 upokojitev, zasluzni profesor UL-FS | Professor Emeritus at UL-FME

Igor Grabec je zasluzni profesor Fakultete za strojništvo UL. Študij fizike je zaključil z doktorskim delom o nelinearnih ionizacijskih valovih v turbulentni plazmi. Na Fakulteti za strojništvo je predaval fiziko, naključne pojave, kaotično dinamiko in sinergetiko ter ustanovil katedro in laboratorij za sinergetiko. Raziskoval je obdelovalne procese, akustično emisijo obremenjenih snovi in modeliranje ter napovedovanje kompleksnih kaotičnih procesov in prometa. Razvijal je senzorje in sisteme za obdelavo informacij z umetnimi nevronskimi mrežami. Razvite inštrumente je uvajal v preiskave materialov v industriji. Objavil je okoli 500 člankov, štiri knjige in 16 patentov. Aktivno je sodeloval z mnogo univerzami po svetu in še posebej s "Cornell University" v ZDA, kjer je postal pridruženi profesor. Bil je izvoljen v Slovensko akademijo znanosti in umetnosti, Mednarodno akademijo za proizvodno inženirstvo "CIRP" ter postal častni član "World Innovation Foundation".



Gojenje rubinskega kristala na IJS leta 1963. Skozi plazmo visokofrekvenčnega razelektrenja v kremenčevi cevi znotraj tuljave padajo zrnca aluminijevega in kromovega oksida. Pri tem se stopijo in ustvarijo na konici pod cevjo tekočo plast, v kateri raste kristal rubina.

Growing a ruby crystal at the Joseph Stefan Institute in the year 1963. Grains of silicon and chromium oxide are falling through the plasma of a high-frequency discharge in the silicon tube inside the coil. They are melted and form on top of a liquid layer in which the ruby crystal grows.

Igor Grabec is Professor Emeritus at the Faculty of Mechanical Engineering, University of Ljubljana. He finished the study of physics with a PhD thesis on non-linear ionization waves in plasma. He has taught Physics, Stochastic Phenomena, Chaotic Dynamics, and Synergetics and established the Chair and Laboratory for Synergetics. He has investigated manufacturing processes, the acoustic emission of stressed materials, modelling, and the forecasting of complex, chaotic processes and traffic. He developed for this purpose sensors and systems for the processing of information by artificial neural networks. The instrumentation developed was implemented for the non-destructive testing of materials in the industry. His bibliography includes about 500 articles, four books, and 16 patents. He has actively collaborated with many universities in the world and especially with Cornell University in the USA, where he became Adjunct Professor. He was elected to the Slovenian Academy of Sciences and Arts, the International Academy for Production Engineering – CIRP, and became an Honorary Member of the World Innovation Foundation.

Izbrana dela | Important Works

I. Grabec, W. Sachse (1997) Synergetics of Measurements, Prediction and Control", Springer.

I. Grabec (2009) Kipi in stihy | Sculptures and Verses, Kulturno društvo Mohorjan, Prevalje, Art book in Slovenian, English, Russian, Japanese, and German language.

Artificial Eye for Control of Headlights (1973) Patent No. 23236-P-3303/73.

Izbrane nagrade | Selected Awards

1989 Kidričeva nagrada za vrhunske raziskave AE | Kidrič Award For Outstanding Research of AE

1982 nagrada SBK (NSBK) za raziskave AE | Nat. Res. Found. Award (NRFA) for AE research

1977 NSBK za izuma Detektor in Senzor AE | NRFA for the inventions of a detector and sensor of AE

1974 NSBK za izum Umetno oko za kontrolo žarometov | NRFA for the invention of an artificial eye for control of headlights

1972 NSBK za raziskave fizike plazme | NRFA for research in plasma physics



Janez Grum

1946 rojen | born in Ljubljana, Slovenia

1969 diplomira | Degree in machined parts technology

1970–1971 raziskovalec | researcher in metalworking industry

1977 doktorira | Doctorate in computer aided parts classification based on the pattern recognition theory

1971–1978 asistent | Assistant in the field of engineering materials, University of Ljubljana

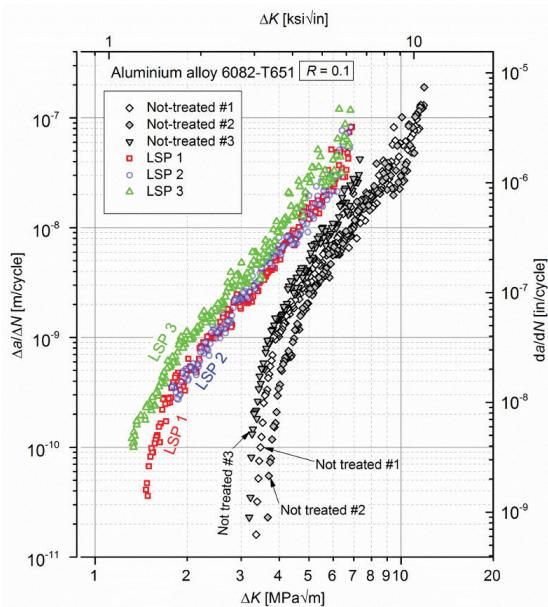
1996 redni profesor | Full professor at University of Ljubljana

1993–2017 vodja oddelka | Head of the Materials Department

1988–2017 vodja laboratorijev | Head of Heat Treatment and Material Testing Laboratories

2004–2017 vodja razis. programa | Head of research programme on production systems, laser technologies and bonding materials

Dr. Grum izhaja iz študijske smeri »Avtomatizacija, obdelovalni sistemi in računalniška tehnologija«, ki jo je utemeljil akademik prof. Janez Peklenik. Pod njegovim mentorstvom je diplomiral in doktoriral iz sistemskega inovativnega pristopa gručenja obdelovancev za mehansko obdelavo v proizvodnem strojništvu z računalniško podporo. Po doktorskem študiju se je vključil, in ga kasneje tudi vodil, v raziskovalni projekt »Integrirata površin po mehanski in toplotni obdelavi«. V zadnjem obdobju je bil tudi vodja programske skupine s programom »Proizvodni sistemi, laserske tehnologije in spajanje materialov«. Raziskovalna skupina dr. Gruma je v okviru programa poznana v svetu z inovativnimi pristopi na področju različnih laserskih obdelovalnih procesov in po intenzivnem mednarodnem sodelovanju s skupnimi objavami. Zelo pomembni so tudi njegovi prispevki v številnih knjigah, izdanih pri svetovnih založniških hišah. Je tudi urednik revije »International Journal of Microstructure and Materials Properties« pri založbi Inderscience.



Vplivi laserskega udarnega utrjevanja na rast razpoke pri visokocikličnem utrujanju in lomna žilavost aluminijeve zlitine 6082-T651.

Effects of laser shock processing on high cycle fatigue crack growth rate and fracture toughness of an aluminium alloy 6082-T651.

Izbrana dela | Important Works

Grum J (2010) Residual stresses and microstructural... Davim P (ed) Surface integrity in machining, Springer, 67-127.

Grum J (2014) Residual stresses in induction..., Rudnev V, Totten G E(eds), ASM handbook, Vol. 4C, Induction heating and heat treatment, ASM Int, Ohio, 103-129.

Bergant Z, Trdan U, Grum J (2016) Effects of laser shock processing on high cycle fatigue...6082-T651, Int Journal of Fatigue, 87, 444-455.

Izbrane nagrade | Selected Awards

- 2001 Zoiss Distinction
- 2006 Member of the Slovenian Engineering Academy
- 2006 Member of the World Academy of Materials and Mechanical Engineering
- 2009 Member of the Academia Int, Brescia
- 2014 Fellow of Alpha Sigma Mu (Fellow ASMu), Pittsburgh, Pennsylvania
- 2015 Fellow of the British Institute for Non-destructive testing (Fellow BINDT), Nottingham
- 2016 The Golden Plaque Award of Uni. of Ljubljana
- 2020 FASM Fellow Award of American Society for Materials, Ohio

Dr. Grum studied in the programme on automation, machining processes, and computer technologies, founded by a member of the Slovene Academy of Arts and Science, Professor Janez Peklenik. Under Peklenik's supervision, Grum graduated and completed a PhD on the access to system innovation group technology for machine parts in production engineering with computer support. After his studies, he joined and later led the research project surface Integrity after mechanical machining and heat treatment. Recently he was the head of the group researching production systems, laser technologies, and bonding materials. Dr. Grum's research group is known worldwide because of the innovative approaches used within the programme for the processing techniques of various laser materials and intensive international cooperation and joint publications. He has made significant contributions to numerous books issued by internationally renowned publishers. He is also the editor in chief of the Journal of Microstructure and Materials Properties issued by InderScience.



Marko Jagodič

1935 rojen v Krškem | Born Krško, Slovenia

1960 diplomira iz telekomunikacij | Degree in telecommunications, UL

1967 magistrira | Master's at Polytechnic Institute of Brooklyn

doktorira | Doctorate at UL

1985 RR direktor | RD director, Iskra Telematika, Kranj

1987 izredni profesor | Associated professor, UL

1990 RR direktor | RD director, Iskratel, Kranj

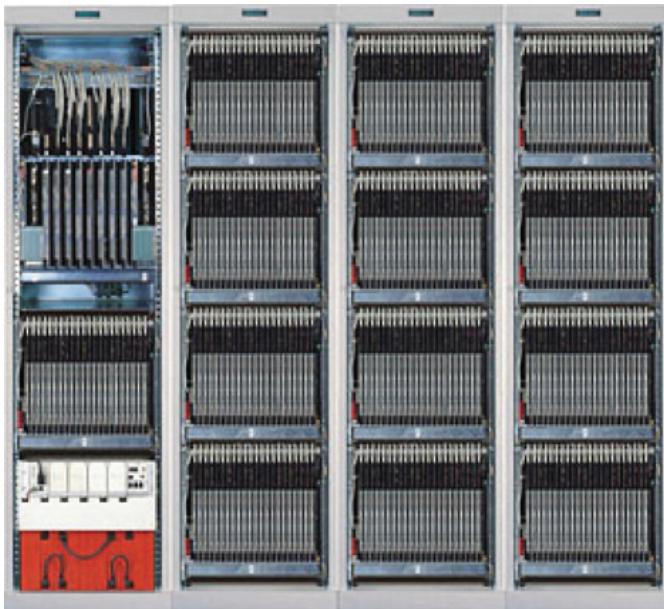
1990 predstavnik Slovenije | Representative of Slovenia, DC-ICT COST

2001 predsednik Sveta za telekomunikacije RS | President of Telecommunications Council of RS

2004 direktor | Director, IEEE Com-Soc EAME

1968 predstavnik Slovenije v ITU (PP, ITU CTD, ITU-T, ITU-D, ITU-WTF) | Representative of Slovenia in ITU

Dr. Jagodič je svetovno znani strokovnjak s področja telekomunikacij. S svojim raziskovalnim, razvojnimi in izobraževalnimi delom v okviru Iskre, Univerz v Ljubljani in Mariboru ter v International Telecommunication Union (ITU) v Ženevi je odločilno prispeval k uveljavitvi Slovenije kot pomembnega akterja pri razvoju v prihodnost usmerjenih komunikacijskih in informacijskih tehnologij v svetu. Posebej izstopajo dosežki na področju digitalizacije telefonskih central in sistemov prenosa. Uveljavil pa se je tudi pri procesu reorganizacije ITU v smeri večje aktivne udeležbe držav v razvoju pri pripravi globalnih standardov za področje telekomunikacij ter pri globalnem upravljanju s frekvenčnimi in satelitskimi orbitami za potrebe telekomunikacij.



SI 2000, prva digitalna telefonska centrala na svetu, ki temelji na računalniški arhitekturi.

SI 2000 was the first digital exchange system in the world based on computer architecture.

Dr. Jagodič is a world-known expert in the area of telecommunications. With his research, development, and educational work in the company Iskra, the Universities of Ljubljana and Maribor, and the International Telecommunication Union in Geneva, he has contributed to recognizing Slovenia as an essential contributor to the future-oriented worldwide development of communication and information technologies. Especially significant are his achievements in the area of digital exchanges and transmission systems. He has also played an essential role in the reorganization process of ITU in developing countries' more significant active presence in the preparation of global standards for telecommunications and the international administration of the frequency spectrum and satellite orbits for telecommunications needs.

Izbrane dela | Important Works

M. Jagodic, N. Simic, J. Trontelj (1981) An LSI Approach to PCM Front End Module, IEEE NTC, Vol. 3, E1/6, 1-6.

M. Jagodic (1992) Advanced yet Affordable Rural Networking, ITU Telecom Americas Forum, Technical Symposium, Part 2, Session 1, 3-6, Acapulco.

M. Jagodic (1995) Future Network Requirements for Developing Countries, 2nd IEEE Malaysia ICC 1995, Langkawi, Malaysia, Vol.1, S4.1-S4.4.

Izbrane nagrade | Selected Awards

1970, 1981 nagrada za iznajdbe Sklada Borisa Kidriča | Best Innovation Reward from Boris Kidrič Fund

1992 Srebrna častna medalja ITU | ITU Silver Medal of Honor

1999 Zlata plaketa | Golden Plaque, University of Maribor

2010 priznanje za več kot 30 let sodelovanja | Recognition for more than 30 years of collaboration, IEEE ComSoc

2018 Zlata medalja za 50 let zvestobe in sodelovanja z ITU | Golden Medal of Honor for 50 years of loyalty and dedicated service to ITU

2019 Puhova nagrada za življensko delo | Puh Prize for lifetime achievement



Japec Jakopin

1951 rojen v Brežicah | born in Brezice, Slovenia

1974 konča študij medicine na Medicinski Fakulteti Univerze v Ljubljani (dr. med.) | Degree in medicine, University of Ljubljana

1977 magister znanosti iz kardiologije na Medicinski Fakulteti Univerze v Ljubljani | Master's degree in medicine (cardiology), University of Ljubljana

1980 doktorat znanosti iz kardiologije na Medicinski Fakulteti Univerze v Ljubljani | PhD degree in medicine, University of Ljubljana

1983 ustanovil studio J&J Design z bratom Jernejem | Founded J&J Design studio with his brother Jernej

Japec Jakopin je delal v letih 1976–1984 kot raziskovalni kardiolog na področju motenj srčnega ritma v skupini prof. dr. Matije Horvata na Medicinski fakulteti Univerze v Ljubljani in objavil ali sodeloval pri objavi 65 del iz te tematike. Leta 1983 je z bratom Jernejem ustanovil navtični načrtovalni studio J&J Design, v katerem dela še danes. J&J Design izdeluje načrte za serijsko gradnjo motornih jaht in jadrnic. Do sedaj je bilo izdelanih 320 projektov, po katerih je 60 ladjedelnic v 28 državah izdelalo več kot 60.000 plovil, kar postavlja studio na vodilno mesto na svetu. Značilnosti projektov so združitev nacionalnih navtičnih kultur v globalno priljubljene barke, vpeljava visoke tehnologije v izdelavo bark (blagovna znamka Shipman) in trajnostnih in okolju prijaznih tehnologij v navtiki (blagovna znamka Greenline). Jakopinovo delo je zasnova novih plovil.



Hibridna barka Greenline 33, ki jo je zasnoval Jakopin v letu 2008, je združila fotovoltaično tehnologijo, litijeve baterije in električno-dizelski pogon z novo obliko trupa. Tako je nastala prva serijska barka, ki pluje neslišno in brez nevarnih izpustov: izdelali smo več kot 550 bark v trideset državah po svetu.

Hybrid yacht Greenline 33, created by Jakopin in 2008, blended photovoltaic technology, Lithium batteries, and diesel-electric propulsion with new hull design. Five hundred fifty of the world's first production hybrid yacht sail without noise, vibrations, and zero emissions in 30 countries worldwide.

Japec Jakopin worked as a research cardiologist between 1976 and 1984 in the team of Professor Matija Horvat at the University of Ljubljana Medical school, publishing (or co-authoring) 65 works in the field of cardiac rhythm disturbances. In 1983 he founded with his brother a yacht design studio J&J Design where he is still active today. J&J Design provides design and engineering for the production of power and sailing yachts. In 320 projects for 60 boatbuilders from 28 countries, the design studio has helped create some 60,000 sailing and power yachts making J&J Design a world-leading production yacht design office. The main characteristics of J&J's work are blending national boating cultures and designs into globally best-selling yachts, the introduction of high-tech into boatbuilding (Shipman Carbon Yachts), and the application of sustainable and environmentally friendly technologies in boating (Greenline Hybrid yachts). The work of Jakopin involves the creation of new yacht design concepts.

Izbrana dela | Important Works

2008 Superdisplacement hull design patent; 2018 S.A.F.E. Platform patent-list of designs at www.jnj.design.

Izbrane nagrade | Selected Awards

1971,1972,1973 nagrada Univerze v Ljubljani za najboljše raziskovalno delo študentov | Best student research work award, University of Ljubljana
1995 nagrada Poslovnež leta | Businessman of the year

112 nagrad "Barka leta" ali design nagrada v 18 državah po svetu | 112 awards "Boat of the Year" or design awards in 18 countries



Mihael Japelj

1935 rojen v Ljubljani | born in Ljubljana, Slovenia

1959 diplomira iz kemijskega inženirstva University of Ljubljana | Degree in chemical engineering, UL

1959-1962 zaposlen tekstnih tovarnah | Employed in textile factories

1960-2003 zaposlen v Krki, Tovarni zdravil, Novo mesto | Employed in Krka, Pharmaceutical Works, Novo mesto, Slovenia

1964 magistrira iz kemijске tehnologije | Master's of Chemical Technology, University of Ljubljana

1969 doktorira iz organske kemije | Doctorate in organic chemistry, University of Ljubljana

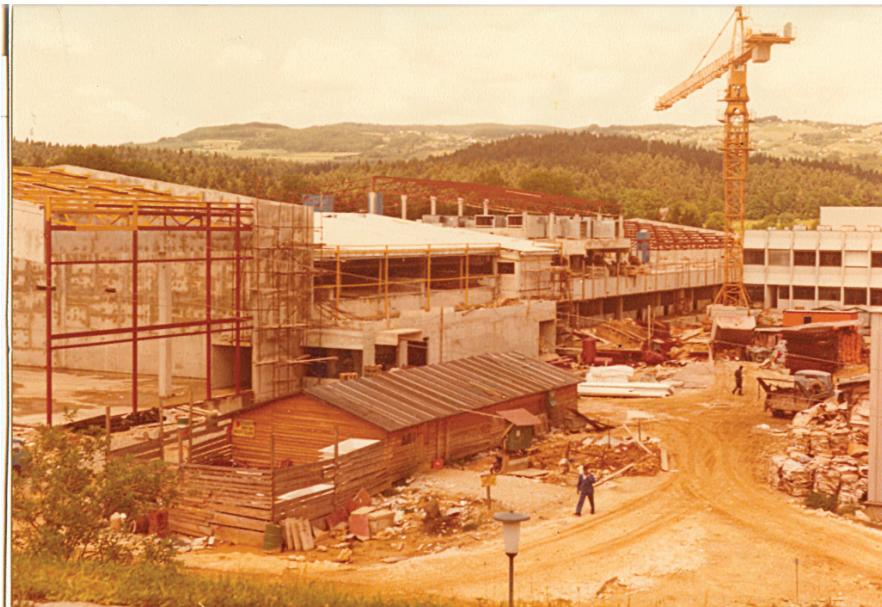
1973 docent | Assistant professor, University of Ljubljana

1979 izredni profesor | Associate professor, University of Ljubljana

1984 redni profesor | Full professor, University of Ljubljana

2003 upokojen | Retired

Prof. Japelj je posvetil večino svojega strokovnega dela na rasti raziskav in razvoja v tovarni zdravil Krka, Novo mesto. Je pobudnik tesnega sodelovanja industrije z univerzo, SAZU, IAS in raziskovalnimi institucijami v Sloveniji in v tujini. Prof. Japelj je avtor številnih patentov za sintezo farmacevtskih učinkovin, kot so 1,4-benzodiazepini, antibiotiki, kinoloni, ACE inhibitorji, antivirusne spojine in drugo. Izvajal je ekstrakcijo bolhača (pyrethruma) v industrijskem obratu. Od leta 1970 do 2002 je dr. Japelj predaval na FKKT predmet Organska kemijska tehnologija. Do leta 2010 je še aktivno poučeval farmacevtsko kemijo na Univerzi v Mariboru in kasneje še na visokošolskih ustanovah (VITES in FINI) v Novem mestu. Dr. Japelj je avtor in soavtor 50 znanstvenih člankov in 86 patentov. Bil je sodni izvedenec za področje kemije v Novem mestu, na Dolenjskem in Beli Krajini. Z mag. Borisom Andrijaničem sta v letu 1971 osnovala Sklad Krkinih nagrad, ki že 50 let spodbuja in nagrajuje raziskave mladih študentov. Japelj je danes častni predsednik Sveta Sklada Krkinih nagrad.



Gradnja Krkinega obrata za fermentacijo tetraciklinskih antibiotikov v letu 1970.

Buliding of Krka's plant for the fermentation of tetracycline antibiotics from the year 1970.

Izbrana dela | Important Works

Professor Japelj has dedicated his professional career to research work in Krka. He is author of 80 patents for the synthesis of antibiotics, quinolines, ACE inhibitors, antivirals, etc. He also developed the industrial extraction of pyrethrum. In 1971 together with Boris Andrijanič he established the Krka Prizes Foundation to grant awards to young students' research work. Dr. Japelj is Honorary President of the Krka Prizes Foundation.

Izbrane nagrade | Selected Awards

- 1986** nagrada Sklada Borisa Kidriča | Boris Kidrič Foundation Award
- 1973–1999** 10 nagrad Sklada Borisa Kidriča | 10 Boris Kidrič Foundation awards
- 2007** častni občan MO Novo mesto | Honorary Citizen of Novo mesto Municipality, Slovenia
- 2011** častni občan Občine Trebnje | Honorary Citizen of Trebnje Municipality, Slovenia
- 2017** SZF-Prometej znanosti | Prometheus of the Science

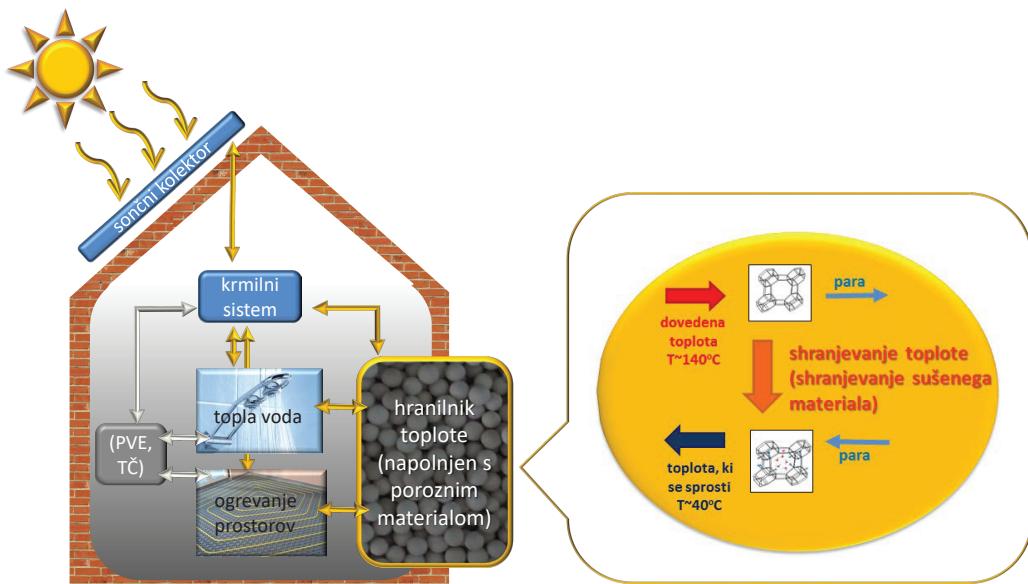
Professor Japelj has dedicated most of his life, that is, from the year 1962, to Novo Mesto, Slovenia. He has been an initiator and proponent of mutual cooperation between industry, universities, the Slovenian Academy of Sciences and Arts, the Slovenian Academy of Engineering, and R&D institutes in Slovenia and abroad. He is the author of many international patents and technologies to synthesize pharmaceutically active substances like a semisynthetic antibiotic, penicillin, tetracyclines, quinolone chemotherapeutics, nifedipine, enalapril maleate, etc. He also developed the industrial extraction of pyrethrum. He has extensive experience of mutual collaboration with many important chemists from the whole world as well as with chemists from the former Yugoslavia. He is also the author or co-author of 86 patents. Together with the famous manager of Krka, Boris Andrijanič, Dr. Japelj established in the year 1971 the KRKA PRIZE Foundation. In the 49 years since, 2825 Krka awards have been granted to students from Slovenia and other countries. Dr. Japelj recently became the Honorary President of the Krka Prize Foundation.



Venčeslav Kaučič

- 1950** rojen v V. Brebrovniku, Ormož
| Born in V. Brebrovnik
- 1973** diplomira | Undergraduate degree, Univ. of Ljubljana
- 1977** doktorira | Doctorate, Univ. of Ljubljana
- 1980** docent | Assistant professor, Univ. of Ljubljana
- 1992** redni profesor | Full professor, Univ. of Ljubljana
- 1984** vodja razv.-tehnol. sektorja Iskra | Head of Development and Technology, Iskra Ferit, Ljubljana
- 1988** vodja strok. službe RSS | head, Research Fund of Slovenia
- 1990** državni podsekretar, MZT | Undersecretary of state, Ministry of Science and Technology, Rep. of Slovenia
- 1992** vodja Odseka za anorg. kemijo in tehnologijo, Kemijski inštitut | Head, Department of Inorganic Chemistry and Technology, NIC, Slovenia

Dr. Kaučič že več kot 45 let uporablja rentgensko in nevtronsko difrakcijo za določanje strukture kristaliničnih snovi ter aktivno promovira uporabo sinhrotronske radiacije in na njej zasnovanih novih difrakcijskih metod. Zadnjih 25 let deluje na področju nanoporoznih materialov za razvoj učinkovitih in okolju prijaznih mikro- in mezoporoznih katalizatorjev in za razvoj novih poroznih materialov z optimalnimi/selektivnimi sorpcijskimi lastnostmi za shranjevanje ter ločevanje plinov. Za strukturne karakterizacije kristaliziranih ali delno oz. slabo kristaliziranih trdnih snovi je kot komplementarni metodi rentgenski difrakciji na monokristalih in praškovni rentgenski difrakciji pomagal uvajati NMR v trdnem agregatnem stanju in rentgensko absorpcijsko spektroskopijo. Na Kemijskem inštitutu v Ljubljani je več kot 20 let vodil Odsek za anorgansko kemijo in tehnologijo in sodeloval z več slovenskimi podjetji pri reševanju strokovnih vprašanj in uvajanju novih rešitev in proizvodov v proizvodnjo.



A. Ristić, N. Zabukovec Logar, S. Henninger in V. Kaučič so v Adv. funct. mat. objavili članek o odlični učinkovitosti mikroporoznega materiala z majhnimi porami pri izmenjavi toplote. Uporaba reverzibilno kemijske in/ali fizičalne vezave vode ponuja nov koncept za dolgoročno shranjevanje energije.

A. Ristić, N. Zabukovec Logar, S. Henninger, and V. Kaučič published an article in a journal on Adv. Funct. Mat. on the excellent performance of a small-pore microporous material in heat exchange. The use of reversible chemical and physical water-binding offers a new concept for long-term storage of energy.

Dr. Kaučič uses X-ray and neutron diffraction to determine the structure of crystalline materials and actively promotes synchrotron radiation and new diffraction methods. His current research interests include the synthesis and characterisation of porous solids (micro- and mesoporous materials, their composites, and metal-organic frameworks), with the emphasis on the use and development of crystallographic methods. For the past 25 years he has been working in the field of nanoporous materials to develop efficient and environmentally friendly micro- and mesoporous catalysts and to develop new porous materials with optimal/selective absorption properties for gas and heat storage and for gas mixtures separation. For over 20 years, he was head of the Department of Inorganic Chemistry and Technology at the National Institute of Chemistry in Ljubljana and professor of Inorganic Chemistry at the University of Ljubljana. He cooperated with several Slovenian companies in solving their professional problems and introducing new products into production.

Izbrana dela | Important Works

Fakin T, Ristić, A, Kaučič V, Zabukovec Logar N, Goznik I, Horvat A (2017) Preparation of zeolite ZSM-5 granulates free from inorganic binders, European Patent.

Ristić A, Zabukovec Logar N, Henninger S, Kaučič V (2012) The performance of small-pore microporous aluminophosphates in low-temperature solar energy storage: the structure-property relationship. Advanced functional materials.

Izbrane nagrade | Selected Awards

1997 državna nagrada za vrhunske dosežke v znanosti (zdaj Zoisova nagrada) | Slovenian National Award for the Highest Achievements in Science

2001 Hanuševa medalja | Hanus Medal (Czech Chemical Society)

2009 nagrada SZF | Award of the Slov. Science Foundation

2011 častni član, Avstrijsko kemijsko društvo | Honorary Member Austrian Chemical Society

2017 častni predsednik, Slovensko kemijsko društvo | Honorary President, Slovenian Chemical Society



Borut Kelih

- 1958** rojen na Jesenicah | Born on Jesenice, Slovenia
1982 diplomira s področja implantabilnih stimulatorjev | Degree, thesis on implantable stimulator, FE, University of Ljubljana
1989 magistrira | Master's, FE, University of Ljubljana
1991 ustanovi podjetje LEA, d.o.o. | Founded LEA, d.o.o.
2005 projekt sončna elektrarna 16,9 kW | Solar plant project
2014 projekt | Garden Village project, Bled

Borut Kelih je svojo strokovno pot začel kot študent in kasneje kot raziskovalec na IJS, na Oddelku za biokibernetiko in robotiko. Po zaključenem magisteriju se je leta 1990 odločil za samostojno pot in z ženo ustanovil podjetje LEA, d.o.o., podjetje za razvoj in aplikacije elektronske in programske opreme, d.o.o. Podjetje ima svoj razvojni oddelk in proizvodnjo za različne prikazovalnike LED na področju bančništva, športa, v zadnjem času pa predvsem na področju transporta. Leta 2008 je podjetje kupilo podjetje SWARCO in s tem omogočilo nadaljnjo rast in širitev prodaje po celi svetu. Borut Kelih se je posvetil projektom trajnostnega razvoja in investiral, vodil in sooblikoval turistično kmetijo Ročnjek na Gorjušah (TNP) ter Garden Village Bled, ki je bil v času izgradnje svetovna uspešnica in vzor uspešne umestitve turizma v naravno okolje. Poleg turizma projekt temelji na povečanju samoskrbe na področju hrane in energije in učenju, kako to doseči.



Garden Village Bled, trajnostna oblika turizma.

Garden Village Bled, sustainable tourist ECO resort.

Borut Kelih started his career as a student and later as a researcher in the department of biocybernetics and robotics at the Jozef Stefan Institute in Ljubljana. In 1990, after obtaining his master's degree, he and his wife founded the company LEA, d.o.o. The company focuses on developing and producing LED displays for different purposes, recently mainly for road transport applications like passenger information displays, variable message signs, and VMS trailers. In the year 2008, the company was bought by SWARCO, a traffic technology group that helped develop the company and provided worldwide marketing options. Borut Kelih redirected his focus to so-called sustainable development. He invested and was directly involved in creating and building a tourist farm Ročnjek, located in the Triglav national park, and Garden Village Bled, an ecological glamping resort and an excellent example of successful integration of tourism in nature. Apart from tourism, the Garden Village project is based on improving sustainability in food and energy and providing education on how to achieve that.

Izbrane dela | Important Works

B. Kelih, M. Matija. Evaluation of gait during therapy with six-channel electrical stimulation.

U. Bogataj, G. Nuša, M. Maležič. Restoration of gait during two to three weeks of therapy with multichannel electrical stimulation.

B. Kelih, M. Kljajić, R. Aćimović-Janežič (2014) Garden Village Bled, Sustainable tourism.

Izbrane nagrade | Selected Awards

1982 Univerziteta Prešernova nagrada za študente

2006 Gorenjska gazela—najbolje hitro rastoče podjetje v regiji

2008 Pečat občine Radovljica za prispevek h gospodarskemu napredku občine

2014 Snovalec, SPIRIT Slovenija projekt Garden Village Bled (GVB) | "Snovalec" award

2015 Sejalec, SPIRIT Slovenija projekt Garden Village Bled (GVB) | "Sejalec" award

2015 Certificate of excellence, 2015 Winner, GVB

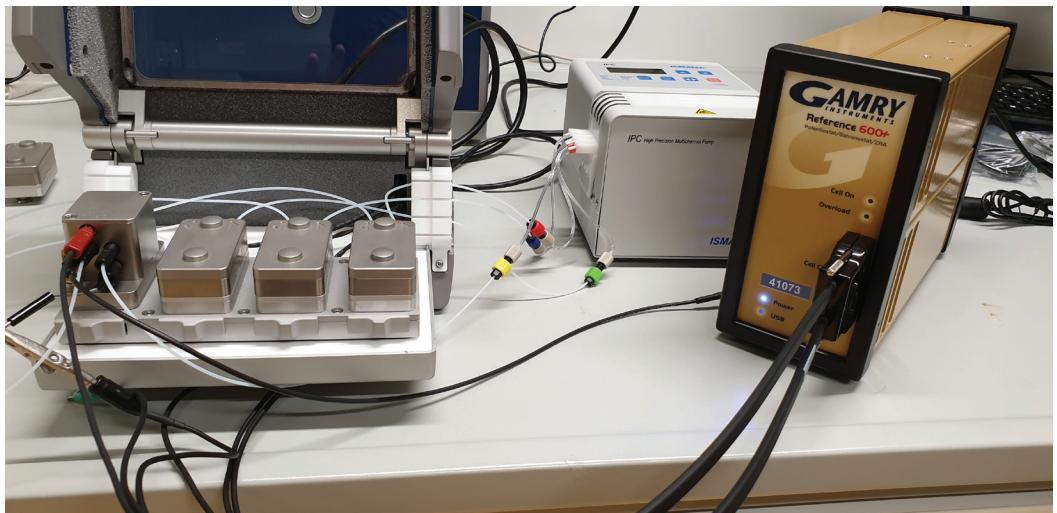
2016 Glamping Hub Greatest; GVB



Karin Stana Kleinschek

- 1964** rojena v Mariboru | Born in Maribor, Slovenia
1992 magistrira | Master's, University of University of Maribor
1996 doktorira iz površinskih lastnosti obdelane celuloze | PhD on surface properties of processed cellulose at Karl Franzens University of Graz, Austria
1997 podoktorski študij na Karl Franzens Univerzi v Gradcu | Postdoc at KF University Graz, Austria
2007 redna profesorica | Full professor, University of Maribor
2019 redna profesorica | Full professor at University of Technology Graz, Austriaana

Karin Stana Kleinschek je diplomirala in magistrirala na Fakulteti za Strojništvo Univerze v Mariboru, s področja tekstilne kemije, kjer se je začela ukvarjati z vlaknotvornimi biopolimeri. Doktorski študij je zaključila na Univerzi Karl Franzens (KF) v Gradcu v Avstriji, na področju kemije. Na Inštitutu za fizikalno kemijo Univerze KF, kjer je delovala tudi v svojem podoktorskem izobraževanju, se je ukvarjala s preučevanjem površinskih lastnosti vlaknotvornih biopolimerov-polisaharidov. Le-ti so ostali njena glavna raziskovalna tema v času zaposlitve na Univerzi v Mariboru, kjer je dolga leta uspešno vodila Programsko skupino Tekstilna kemija, ki sodi med uspešnejše v Sloveniji. Svoje delo na področju uporabe polisaharidov v biomedicinske namene nadaljuje na Tehniški Univerzi v Gradcu, kjer kot redna profesorica za kemijsko tehnologijo biopolimerov vodi Inštitut za Kemijo in tehnologijo biosistemov.



Prof. Karin Stana Kleinschek dela na področju karakterizacije in površinskih modifikacij polisaharidov in njihove uporabe v biomedicinske namene. Uporaba Kvarčne mikrotehtnice s potenciostatom, za in situ spremeljanje elektrokemijskih reakcij na mejnih slojih, odlikuje inovativen pristop raziskav na področju tkivnega inženirstva.

Prof. Karin Kleinschek works in the field of the characterization and surface modification of polysaccharides, which are used in biomedical applications. The use of the Quartz crystal microbalance in combination with the potentiostat, for the in situ determination of the phenomenon on surfaces at solid/liquid interface, represents an innovative approach and is applicable in tissue engineering research.

Karin Stana Kleinschek obtained her PhD degree from the Institute of Physical Chemistry of the University of Graz, Austria. Her field of expertise is surface modification and the characterization of biopolymers, especially polysaccharides and their usability in biomedical applications, biomaterials, 3D bioprinting, and the development of new bioink and biopolymer composites. She led the Laboratory for Processing and Characterization of Polymers LCPP at the University of Maribor, Slovenia for more than 15 years and, as of 2020, is Head of the Institute of Chemistry and Technology of Bio-Based Systems, Faculty of Technical Chemistry, Chemical and Process Engineering, and Biotechnology, at the Graz University of Technology, Austria. She was also a full professor at the University of Maribor, Faculty of Electrical Engineering and Computer Science, Maribor. From 2011 to 2015, she was a Vice-Rector for Research and Development of the University of Maribor. She is a member of various scientific organizations and vice president of research of the European Polysaccharide Network of Excellence (EPNOE).

Izbrane dela | Important Works

K. Stana Kleinschek, V. Ribitsch (1998) Electrokinetic properties of cellulose fibers. *Colloids and Surfaces* 140.

T. Elschner, K. Stana Kleinschek, et al. (2020) Modification of cellulose thin films with lysine moieties, *Cellulose* 25(1).

T. Mohan, K. Stana Kleinschek et al. (2020) Generic method for designing 3D bioscaffolds for tissue engineering applications. *ACS Applied Bio Materials* 3(2).

Izbrane nagrade | Selected Awards

- 2017 University of Maribor: Award for the best Scientific achievements at the University
- 2016 University of Maribor, Faculty of Mechanical Engineering: Award for the best research achievements in the Faculty
- 2004 Ministry for Higher Education and Research ARRS, Slovenia: Price for the best supervision of the PhD thesis
- 1988 University of Maribor: Award for the best Diploma thesis



Jože Kobe

1942 rojen v Ljubljani | Born in Ljubljana, Slovenia

1964 diplomira iz het. kem. | Degree in Chemistry, University of Ljubljana

1969 doktorira iz sinteze aza-analogov purina | PhD on synthesis of aza-analogues of purine, University of Ljubljana

1971 podoktorsko izpopolnjevanje | Postdoc in ICN-NARI, Irvine

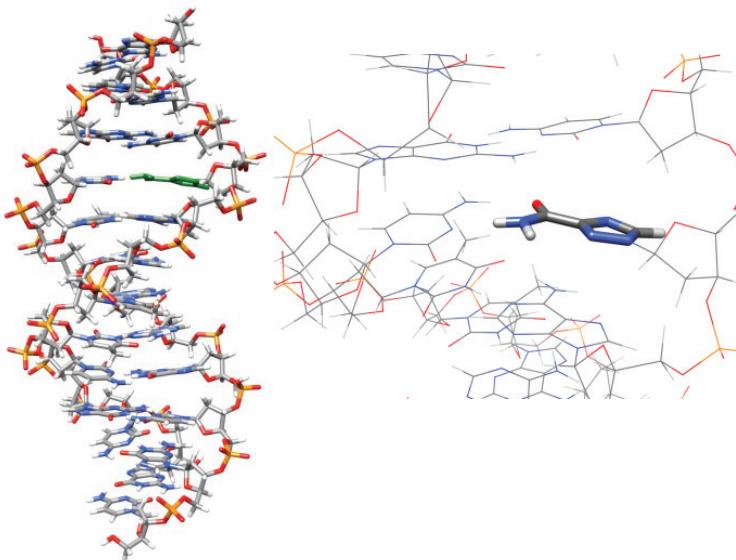
1974 znanstveni sodelavec | scientific collaborator, National Institute of Chemistry (NIC), Ljubljana

1980 gostujuči znanstvenik | Visiting scientist, College of Pharmacy, University of Michigan, Ann Arbor and 1984 Astra, Lakemeden, Sweden

1992 ustanovitelj in vodja Laboratorija za org. kem. in kem. zdravil | Founder of Laboratory of Org. and Med. Chem., NIC, Ljubljana;

1995 znanstveni svetnik | Research professor

Dr. Jože Kobe je začel študij heterociklične kemije pri Mihi Tišlerju ter se usmeril (A. Pollak) v sintezo novih purinskih analogov NK. Pristop je nadaljeval v ICN-Nucleic Acids Research Institute (R. K. Robins), spoznal namembnost preteklega dela in vpeljal sistem pyrazolo(1,5-a)-s-triazin kot inhibitor c-AMP-fosfodiesteraze z visoko aktivnostjo. Izkušnje je izkoristil s prehodom na Kemijski inštitut na povabilo D. Hadžija, ki je organiziral konzorcij osnovnih raziskav in sodelovanje s KRKO, Fakulteto za farmacijo, Medicinsko fakulteto in KI. Vzporedno z osnovnimi raziskavami so namenili velik pomen generičnim učinkovinam, predvsem Ribavirinu in Aciklovirju. S Krko je izdelal neodvisni patent ter prepričal (Welcome) v donosno koncesijo. Pt (II) kompleks (L. G. Marzilli, G. Natile) je predvidel kot gradnike DNK, 12-mer z Ribavirinom za post-sintezno osnovo, oziroma kot marker (S. Jakša). Omenimo tudi biološko ovrednotenje kvadropleskov paralelnih 6-mer z variiranjem 8-aza-gvanozina v sekvenci-TGGGAG kot potrebno za anti-HIV aktivnost.



Sinteza od sladkorja do nenanaravne deoksi-ribonukleinske kisline (DNK).

Dickerson-Drew 12-mer, prepared with deoxy-Ribavirin, replacing deoxy-guanosine.

Izbrana dela | Important Works

Jakša S., Kralj B., Pannecouque C., Balzarini, J., DeClercq E., Kobe J. (2004): How a Modification ...; Nucleosides, Nucleotides & Nuc. Acids; 37(1/2):77-88.

Kobe J., Gnidovec J., Zupet P. (1987) Proc. for Prep. 9-(2-hydroxyethoxymethyl)guanine and a Process for Preparing Intermediates: US Patent 4 701 526.

Kobe J., Robins R. K., O'Brien D. E. (1974) The Synthesis and Chem. Reactions of ..., J. Het. Chem., 11:199-204.

Izbrane nagrade | Selected Awards

1964 Prešernova nagrada za študente | Prešern student award; University of Ljubljana, Faculty of Chemistry and Chemical Technology.

1971, 1979 stipendija Fulbright, Fulbright Scholarship

1983, 1984 YU-US-joint Program: Metal Ions Complexation of Antiviral Nucleosides and Synthesis of C-nucleosides Related to Formycin and Pseudouridine.

2010 Symposium on Nucleic Acid Chemistry; Structure and Interactions. Slovenian NMR Centre, Nova Gorica; dedicated to J.K.

After graduation, dr. Jože Kobe spent a year in the advanced laboratory of the ICN Nucleic Acid Research Institute with professor R. K. Robins in Irvine, California, becoming acquainted with novel concepts in medicinal chemistry and nucleic acid research in pharmaceutical firms. He introduced a novel quality in the area of theophylline analogues/pyrazolo -s- triazine ring system/ with significant inhibition of c-AMP response. He also made a contribution to the structural determination of synthetic nucleosides, which, besides synthesis, was his primary focus in a consortium organized by Professor D. Hadži, KRKA, NIC, and the Faculty of Pharmacy. He then moved to NIC, led the antiviral programme on synthetic nucleosides with the approval of KRKA. It culminated in a patent for Acyclovir synthesis and technology based on novel protection of guanine. He also carried out research on non-natural shorter DNAs by inclusion of 2'-deoxyribavirin and 8-aza-analog of guanosine (12-mer and 6-mer) (together with S. Jakša) as potential templates for post-synthetic treatment with Pt (II) reagents. The parallel quadruplex of TG-G*GAG is imperative for anti-HIV activity.



Spomenka Kobe

- 1991** doktorira | PhD, University of Ljubljana
- 2003** znanstvena svetnica | Scientific Advisor at Jožef Stefan Institut
- 2002–2018** vodja odseka | Head of department,
- 2003–2020** vodja | Leader of National Research Programme
- 2012** redna profesorica | Full Professor at International Postgraduate School “Jožef Stefan”
- 2009 – 2017** članica | Member of Scientific Board of Jožef Stefan Institute
- 2014** predsednica | President SATE-NA
- 2016, 2020** članica upravnega odbora | Member of the Governing Board of the International Post-graduate School “Jožef Stefan”
- 2017** izredna članica | Associate Member IAS

Prof. dr. Spomenka Kobe, znanstvena svetnica na Odseku za Nanostrukturne materiale, Institut Jožef Stefan, je bila do leta 2018 šestnajst let vodja tega Odseka. Je tudi redna profesorica na Mednarodni Podiplomski Šoli »Jožefa Stefana«. Od leta 2003 do 2020 je vodila Nacionalni program »Nanostrukturi materiali« in je bila do leta 2017 slovenska direktorica Mednarodnega Laboratorija »PACS2« med CNRS, Nancy, Francija in Institutom Jožef Stefan, Ljubljana, Slovenija. V Sloveniji je začetnica in nosilka raziskav in razvoja magnetnih materialov na osnovi redkih zemelj in elementov prehoda, bila je koordinatorka evropskega projekta ROMEO v 7. OP. V celotnem obdobju njene profesionalne kariere je bila večkratna nosilka nacionalnih in mednarodnih projektov in je evropska strokovnjakinja na področju svoje raziskovalne tematike. Njen raziskovalni opus zajema 701 bibliografskih zadevk, od tega 167 originalnih znanstvenih člankov, 12 strokovnih in poljudnih člankov, sedem poglavij v knjigah, šest patentov (trije evropski), eno patentno prijavo in 30 vabljenih predavanj na mednarodnih konferencah.



Nd-Fe-B magneti, izdelani po inovativni tehnologiji in vgrajeni v motor za električno vozilo v francoski firmi Valeo. Test je pokazal 13-odstotno izboljšanje delovanja motorja v primerjavi z referenčnim motorjem; vrtlni navor se je povečal za 11 % pri ΔT 95 K. Oba parametra prispevata k boljši učinkovitosti.

Nd-Fe-B magnets produced by innovative technology in-built in the motor of the electric car in the company Valeo. The electric motor test showed a 13 % higher performance than the benchmark motor; and the torque increased by 11 % at the ΔT of 95 K. Both parameters contribute to higher efficiency.

Prof. Dr. Spomenka Kobe is a Scientific Advisor at the Department for Nanostructured materials and a full professor at the International “Jožef Stefan” Postgraduate School. Until 2018 she served 16 years as the Head of Department at the Jožef Stefan Institute and until 2017 was the Slovene director of The International Associated Laboratory “Push-Pull Alloys And Complex Compounds (PACS2): from bulk properties to surface functions” between CNRS, Nancy, France, and the Jožef Stefan Institute, Ljubljana, Slovenia. She initiated rare-earth magnet research activities in Slovenia and was the coordinator of the (4 million euro) European project “Replacement and Original Magnet Engineering Option” - ROMEO (FP7-NMP). During her career, she was the principal investigator on many national and international projects. She also acts as a European Expert and Evaluator. Her research opus encompasses 701 bibliographic units, of which are 167 original scientific papers, 12 technical and popular articles, seven chapters in books, six patents (3 EP), one patent application, and 30 invited talks.

Izbrane dela | Important Works

Invited talk: S. Kobe, Rare earth magnets in Europe: Trans-Atlantic Workshop on Rare Earth Elements and other Critical Materials for a Clean Energy Future, December 3, 2010, Cambridge, Massachusetts, 2011.

M. Soderžnik, M. Korent, K. Žagar, M. Katter, K. Üstüner, S. Kobe (2016) Acta materialia 115:278-284.

B. Saje, S. Kobe, A.E. Platts, I.R. Harris (1996) EU Patent, No. 95907498.0-2211.

Izbrane nagrade | Selected Awards

1987 državna nagrada za raziskovalno delo Vpliv sestave na proces formiranja mikrostrukture in njen vpliv na magnetne lastnosti mehko-magnetne keramike | The influence of composition and processing parameters on magnetic properties of soft magnetic ceramics

1987, 1989 Two innovation awards (Iskra Feriti) for the technology transfer to production

1992 State award for the research work, technology transfer of Sm-Co magnets to production



Hubert Kosler

1985–1990 Iskra Avtomatika

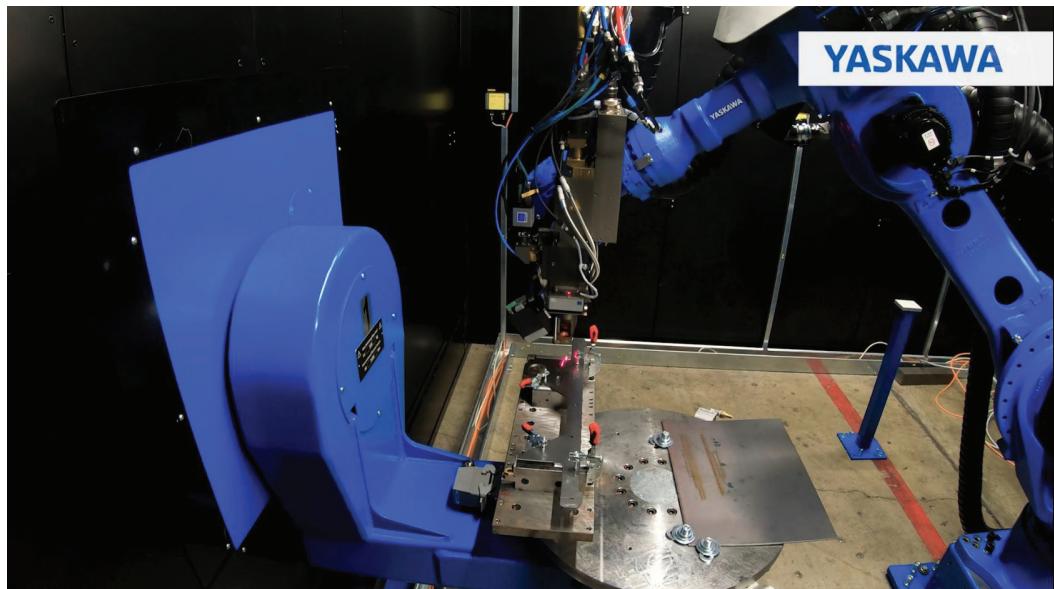
1990 soustanovitelj in direktor | Co-founder and managing director YASKAWA Slovenija d.o.o.

1996 soustanovitelj in direktor | Co-founder and managing director YASKAWA Ristro d.o.o.

2010–2017 direktor | Managing director YASKAWA Czech s.r.o.

2018 direktor | Managing director YASKAWA Europe Robotics d.o.o.

Dr. Kosler se ukvarja z raziskavami na področju industrijske robotike v povezavi z robotskim vidom in tehnološkimi procesi. S tega področja je leta 2016 uspešno zagovarjal doktorsko nalogu, ki predstavlja sintezo treh tehnoloških področij: industrijski robot, laserska profilometrija in laserske daljinske obdelave z vlakenskimi laserji. Nadgradnja doktorske naloge pa je podelitev evropskega patentna za Sistem in metodo za laserske obdelave. Leta 2015 je prevzel celovito odgovornost za postavitev nove tovarne robotov v Evropi, od zasnove objekta do načrtovanja vseh proizvodnih procesov z uporabo virtualne realnosti in digitalnega dvojčka. Koncept tovarne vključuje vse atribute industrije 4.0 oz. I3 Mechatronics – Yaskawin pristop do industrije 4.0 s končnim ciljem: postavitev tovarne prihodnosti. Pod njegovim vodstvom je bila v Kočevju izvedena investicija v vrednosti 25 milijonov EUR znotraj planirane, zagon proizvodnje pa v skladu s terminskim planom – januarja 2019.



Robotska aplikacija za lasersko varjenje nizkoserijskih produktov. Proses opravlja industrijski robot YASKAWA MC2000, opremljen z lasersko triangulacijsko platformo MOTOSense 3.0 in sistemom laserskega varjenja TruDisc 4002.

Robotic application for laser welding of low series products. The process is performed by an industrial robot YASKAWA MC2000 equipped with a laser triangulation platform MOTOSense 3.0 and a laser welding system TruDisc 4002.

Dr. Kosler's work concerns the design and engineering of heavy-duty welding automation and industrial robot welding solutions, including robot cells and robot lines. He is involved in the management of projects to manufacture robot cells and robot lines. He was active in establishing and setting up the Solution Centre, a unit for robot cell production. He helped establish a new robot factory in Kočevje by setting up an engineering department and tool shop with CAD/CAM support to design and produce jigs and grippers. His skills include implementing lean production, developing a laser triangulation vision system for the adaptive tracking of welding seams and 3D scanning, and integrating industrial robots for needs in adaptive remote laser process applications.

Izbrana dela | Important Works

European Patent 3124163 (15 178 871.8) System and Method for Laser Processing.

Matija Jezeršek, Matjaž Kos, Hubert Kosler, Janez Možina (2016) Automatic teaching of a robotic remote laser 3d processing system based on laser-triangulation profilometry, Tehnički Vjesnik 24(1):89-95.

Kosler, Pavlovič, Jezeršek, Možina (2016) Adaptive robotic deburring of die-cast parts with position and orientation measurements using a 3D laser-triangulation sensor, Strojniški Vestnik 62(4):207.

Izbrane nagrade | Selected Awards

2013, 2016 GZS Srebrno nacionalno priznanje | Chamber of Commerce National Silver Award

2013 nagrada GZS za izjemne gospodarske dosežke | Chamber Of Commerce Award for outstanding business achievements

2016 nagrada Zveze strojnih inženirjev za globalno prodornost slovenskega inženirstva | AMES award for global penetration of slovenian engineering

2019 Puhova nagrada za vrhunske dosežke na področju robotske tehnologije | Puh Award for excellence in industrial robotic technology



Aleš Krainer

1942 rojen v Ljubljani | born in Ljubljana, Slovenia

1968 diplomira pri prof. E. Mihevcu poslovna stavba | Graduates at Prof. E. Mihevc on office buildings, University of Ljubljana

1990 doktorira iz energetske bilance zgradbe | Doctorate on the energy balance of building, UL

1969–1970 sanacije objektov po potresu 1969 | rehabilitation of damaged buildings in the earthquake 1969, Vojnogradževinska komanda Banjaluka

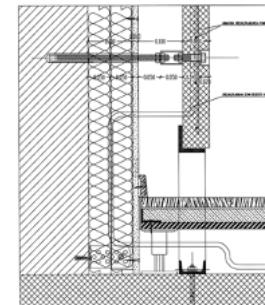
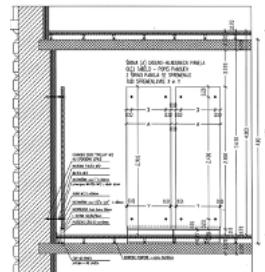
1993, 1995 gostujuči profesor | Visiting professor Architectural Association Graduate School, UK, 1999 Kobe Design University, JP

1998–2013 predstojnik | Head of Chair for Buildings and Constructional Complexes, UL

2006 znanstveni svetnik | Scientific councillor, UL

2007 redni profesor | Full professor, University of Ljubljana

Dr. Krainer je razvil nove metode načrtovanja in oblikovanja konstrukcijskih sklopov in zgradbe kot celote na osnovi sistemski analize v okviru bioklimatskih principov kot odziv na probleme, ki so se po obdobju 1974–1976 pojavili ob energetskih krizah in jih razširil ob sodelovanju s področji fizike (prof. R. Kladnik) in kemije materialov (prof. B. Orel) ter kontrolnih sistemov (prof. I. Škrjanc) in okoljskega zdravja. Upoštevajoč nove materiale (površine za izkoriščanje radiacijskega hlajenja, spektralno selektivne površine za sončne spremjemnike, »pametne« elektrokromne materiale in fazno spremenljive kompozite, narejene iz mavca in butilstearata), je študiral dinamični odziv ovoja stavb in njihov vpliv na rabo energije. Osredotočil se je predvsem na nizkotemperaturne eksergijske sisteme, na vpliv, ki ga imata dnevna svetloba in osenčenje stavbe, v večini povezanih v okviru ciber-fizičnih sistemov s kontrolnimi sistemi na osnovi mehke logike ter okoljskega zdravja.



Slovenski etnografski muzej, energetska prenova (A. Krainer, Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo). Rezultati predhodnih testiranj grelno-hladilnega nizkotemperaturnega panela so: znižanje investicije v HVAC od 530.319 € do 434.075 €; 158 m² se je sprostilo za depoje; specifična poraba energije za ogrevanje se je zmanjšala za 67 %, od 156 kWh/m².a na 50,4 kWh/m².a; dosežena je bila zelo nizka specifična poraba energije za hlajenje 11,2 kWh/m².a.

Slovene Ethnographic Museum, energy renovation (A. Krainer, UL FGG). The results of the previous testing are: the reduction of the investment budget in the field of HVAC from € 530.319 to € 434.075; with the removal of previously designed air condition system, 158 m² were freed for the museum's critical deposit area; gross energy demand for heating is diminished for 67%, from 156 kWh/m².a to 50.4 kWh/m².a; very low specific energy consumption was achieved for cooling i.e. 11.2 kWh/m².a.

Dr. Krainer was from 1998 to 2013 head of the Chair for buildings and constructional complexes (KSKE) and from 1992 director of the KSKE research group. His treatment of dynamic thermal response of buildings is connected to the issues of daylight and system management with the use of fuzzy logic, and recently also influences on the health and energy efficiency of built living and working environment performance. He has been a member of several national and international expert and scientific associations and a member of more than 20 committees at international scientific congresses. He has also led a few dozen of development and research projects in Slovenia and 17 international development and research projects, including 10 Framework Programme and 2 COST projects. He was the initiator and head of the preparation of two new Bologna study programs, BA and MA Buildings. He organized and chaired the Second International ISES Europe Solar Congress, Portorož, 1998, with more than 300 participants from 56 states. His complementary activities are painting and design.

Izbrane dela | Important Works

A. Krainer (1993) Toward smart buildings, In Building science and environment-conscious design, Module 1: Design principles. London: EC, 1993.

I. Škrjanc, B. Zupančič, B. Furlan, A. Krainer (2001) Theoretical and experimental FUZZY modelling of building thermal dynamic response. Building and environment 36(9).

A. Krainer, R. Perdan, G. Krainer (2007) Retrofitting of the Slovene Ethnographic Museum. Bauphysik 29(5).

Izbrane nagrade | Selected Awards

1970 medalja za vojne zasluge, za sodelovanje pri projektiranju in sanacijah objektov, poškodovanih ob potresu v Banjaluki leta 1969 | Medal for military merits, for cooperation in the design and rehabilitation of buildings damaged in the 1969 Banja Luka earthquake

1980 priznanje FAGG ob njeni 60-letnici | FAGG Distinction on its 60th anniversary

2009 Zlata plaketa ob 90-letnici UL FGG | Golden plaque at the 90th anniversary of UL FGG



Zdravko Kravanja

1957 rojen v Mariboru | Born in Maribor

1981 diplomira na Univerzi v Mariboru (UM) | Undergraduate degree at University of Maribor (UM)

1981 zaposlitev v Tovarni dušika Ruše | Employed at Ruše Nitrogen Factory

1985 magistrira | master's degree on investment planning

1988 raziskovalec na Carnegie Mellon University (CMU), ZDA | Visiting researcher at Carnegie Mellon University (CMU), USA

1990 doktorira iz toplotne integracije kemijskih reaktorjev | Doctorate on heat integration of chemical reactors

1991 docent | Assistant professor

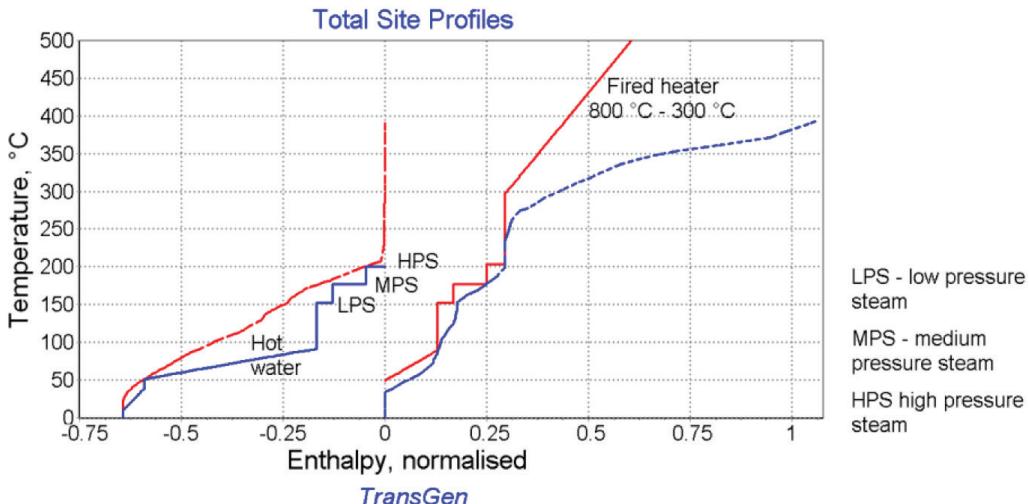
1997 izredni profesor | Associate professor

1997 vabljeni profesor na CMU | Visiting professor at CMU

2001 redni profesor | Full professor

2015 dekan na UM | Dean at UM

Dr. Kravanja je dekan na Fakulteti za kemijo in kemijsko tehnologijo Univerze v Mariboru. Vodi Laboratorij za procesno sistemsko tehniko in trajnostni razvoj. Uvvarja se z razvojem algoritemskih tehnik in računalniških orodij na osnovi matematičnega programiranja za sintezo in rekonstrukcijo inženirskih sistemov po načelih trajnostnega razvoja in krožnega gospodarjenja. Omenjena načela je v preteklosti uveljavljala v različnih svetovalnih telesih in stanovskih društvi doma in po svetu, npr. kot vodja Razvojne skupine za procesne tehnologije v sodelovanju z Ministrstvom za razvoj RS (2008–2009), član Strokovnega sveta za programsko usmerjanje proračuna Republike Slovenije (2009–2010), predsednik Slovenskega akademiskskega tehniško-naravoslovnega društva SATENA (2010–2011), podpredsednik Slovenskega kemijskega društva (2017–), eden od pobudnikov SRIP-a Mreže za prehod v krožno gospodarstvo (2017–), član Sveta za razvoj v kmetijstvu, gozdarstvu in prehrani (2019–). S sodelavci organizira mednarodno konferenco Tehnologije in poslovni modeli za krožno gospodarstvo (TBMCE).



TransGen (Z. Kravanja in L. Čuček, 2015): Toplotna integracija med procesi omogoča znatne prihranke pogonskih sredstev. S programom TransGen identificiramo najdobičkonosnejše modifikacije. Postopek je bil uspešno apliciran na rafinerijskem kompleksu v EU v sklopu demo projekta EFENIS EU FP7.

TransGen (Z. Kravanja in L. Čuček, 2015): Total Site Heat Integration leads to significant savings for utilities. The TransGen program is designed to identify the most profitable retrofits. The program has been successfully applied in a EU refinery complex within the EFENIS EU FP7 demo project.

Dr. Kravanja is a Professor and Dean at the Faculty of Chemistry and Chemical Engineering at the University of Maribor. He is a member of the Working Party for Computer Aided Process Engineering and Education at the European Federation of Chemical Engineering. He was chairman (2007-2010) of the European Committee for the Use of Computers in Chemical Engineering Education (EURECHA). He was president of the Slovenian Academic Association for Engineering and Natural Sciences (SATENA) (2010-2011). His research has focused on the development of algorithmic techniques, strategies, and computer-based tools for sustainable Process Systems Engineering. He was the lead developer of a unique mixed-integer process synthesizer shell called MipSyn, now being upgraded to MIPSYN-Global. More recently, his research has focused on the synthesis of sustainable systems, such as biofuel supply networks based on renewable resources and the development of monetary-based sustainability measures, sustainability profit, and sustainability net present value. He is (co-)author of about 160 publications in scientific journals.

Izbrane dela | Important Works

Z. Kravanja (2010) Challenges in sustainable integrated process synthesis and the capabilities of an MINLP process synthesizer MipSyn. Comput Chem Eng 2010, 34:1831-1848.

Z. Kravanja, L. Čuček (2015) Optimization code TransGen for the retrofit of large heat exchanger networks.

Z. Kravanja, A. Nemet (2019) Optimization code TransHEN for the synthesis of large heat exchanger networks.

Izbrane nagrade | Selected Awards

1999 Srebrna medalja 27e Salon International des Inventions, Geneve | Silver medal of 27e Salon International des Inventions, Geneve;

2015 Pannonia Award, Panonska univerza, Madžarska | Pannonia Award, University of Pannonia, Hungary;

2017 Zoisova nagrada | Zois award for excellence in science



Tamara Lah Turnšek

1947 rojena v Ljubljani | born in Ljubljana

1971 diplomira iz organske kemije | Degree on organic chemistry, University of Ljubljana (UL)

1974 magistrira | Master's on cysteine cathepsin S in calf lymph nodes & Jožef Stefan, Ljubljana,

1975 klinična raziskovalka | Clinical researcher, Pediatric Clinic, UMC Ljubljana

1983 doktorira | Doctorate on protein structure UL

1984 docentka | Assistant professor, Wayne State University, USA

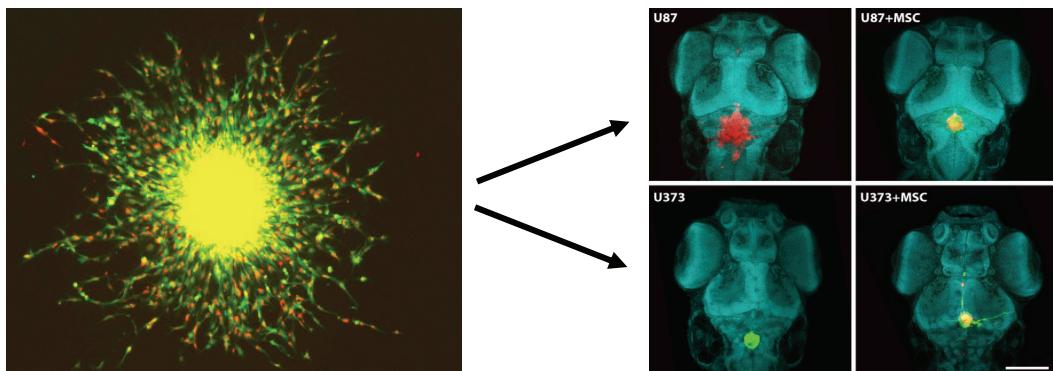
1991 gostujuča profesorica | Visiting professor, Albert Einstein Medical Centre

1995 direktorica | Director of National Institute of Biology

1997 vodja | Head of Department of genetic toxicology and cancer biology

2018 svetovalka in vodja raziskovalnega programa | Research Programme leader and advisor

Raziskovalna pot dr. Tamare Lah Turšek se je začela na Institutu Jožef Stefan in bila vseskozi mednarodno prepletena. Že med študijem je gostovala na Univerzi v Bonnu, del doktorskega dela pa izvajala na Univerzi v Newcastle upon Tyne v Veliki Britaniji. Podoktorsko izpopolnjevanje v ZDA je zaključila leta 1987 kot docentka na Oddelku za farmakologijo Medicinske fakultete Wayne State Univerze v Detroitu. Kasneje je na Medicinskem centru Albert Einstein v Philadelphiji ustanovila Laboratorij za raziskave metastaz in se v celoti posvetila raziskavam raka. Med letoma 1996 in 2018 je bila direktorica Nacionalnega instituta za biologijo, kjer je ustanovila tudi Oddelek za genetsko toksikologijo in biologijo raka. Njeno raziskovalno delo obsega predvsem raziskave molekularnih mehanizmov metastaziranja, invazije možganskih tumorjev, biologije tumorskih in mezenhimskih matičnih celic ter problem neodzivnosti rakavih matičnih celic na zdravljenje. Vodila in sodelovala je v večjih mednarodnih projektih ter v bilateralnih povezavah. Kot gostujuča profesorica je sodelovala z raziskovalnimi skupinami NIH Bethesda, Fox Chase Cancer Centre, Deutsches Krebs Zentrum Heidelberg, Amsterdam Medical Centre in Sao Paolo University iz Brazilije. Redno predava tumorsko biokemijo na Univerzi v Ljubljani.



Najpogosteji možganski tumor glioblastom kljub dosežkom moderne medicine ostaja odporen na terapijo. Danes spoznavamo pomen interakcij rakavih celic z nerakavimi celicami, kot so mezenhimske matične celice, ki lahko pospešijo rast in invazivnost tumorja. Te celice mikrookolja tumorja lahko pospešijo invazijo določene podvrste celic glioblastoma. Levo: skupek glioblastomskih (U87 in U373 celic) in mezenhimskih matičnih celic v sferoidnih kulturah. Desno: Skupek U373 translociran v možgane rib cebrič invadira v okolje in hrbtenjačo.

Despite the advances in modern medicine, the most common brain tumor of glioblastoma remains resistant to therapy. Today we recognize the importance of cancer cell interactions with non-cancer cells, such as mesenchymal stem cells, which can enhance tumor growth and invasion. These cells in the tumor micro-environment can accelerate the invasion of a particular subtype of glioblastoma cells. Left: a cluster of glioblastoma (U87 and U373) cells and mesenchymal stem cells in spheroid cultures. Right: a cluster of U373 cells transplanted into the brain of a cerebellum.

Dr. Tamara Lah Turnšek's collaboration partners are pharmaceutical companies such as Oncogene Science, Ltd., Cambridge in the USA, Novartis Lek, and KRKA, Inc., from Slovenia. Based on the pre-clinical research of dr. Lah Turnšek and her colleagues at the J. Stefan Institute, KRKA, for instance, set up its Department for the production of immuno-diagnostics in Ljubljana in the late 1990s. Another field of application was the development of natural products for the prevention and treatment of cancer. Dr. Lah Turnšek has a long-term contractual relationship with the Pivovarna Laško, where she focuses on developing beverages and beers based on antimutagenic additives derived from hops. Today, Dr. Lah Turnšek is strongly committed to applying research on medical cannabis in collaboration with the multinational company MGC Pharmaceutical. As a long-term director of the National Institute of Biology, she has actively promoted and personally supported NIB spin-off companies, such as BioSistemika d.o.o. (<http://www.biosistemika.com>), today a successful company with over thirty employees and a subsidiary in the USA.

Izbrane dela | Important Works

T. Lah Turnšek, I. Kregar, and D. Lebez (1975) Acid sulphhydryl protease from calf lymph nodes, *Biochimica et Biophysica Acta* 403(2): 514-520.

T. Strojanik, J. Kos, B. Židanik, ..., and T. Lah Turnšek (1999) Cathepsin B immunohistochemical staining in tumour and endothelial cells is a new prognostic factor for survival in patients with brain tumours. *Clin Cancer Res* 5: 559-567.

N. Podrgajs, H. Motaln, U. Rađević, ..., and T. Lah Turnšek (2016) Transmembrane protein CD9 is glioblastoma biomarker, relevant for maintenance of glioblastoma stem cells, *Oncotarget* 7:593-609.

Izbrane nagrade | Selected Awards

2018 Častni red za zasluge | Decoration of Rio Branco; the President of the Republic of Brasil honoured Tamara Lah with the highest State Republic of Brasil award for scientific cooperation between Slovenia and Brazil

2012 nagrada Lapanje | Lapanje award for scientific excellency from Slovenian Biochemical Society

2010 nagrada SPINOZA | Spinoza award for excellence in science from University of Amsterdam, Netherlands

2020 Zoisova nagrada za življensko delo | Zois Lifetime Achievement Award



Jadran Lenarčič

1955 rojen v Beogradu | Born in Belgrade

1979 diplomira, Fakulteta za elektrotehniko, Ljubljana | Undergraduate degree, Faculty of Electrical engineering, Ljubljana

1986 doktorira, Fakulteta za elektrotehniko | PhD Faculty of Electrical Engineering

1992 gostujoči profesor na University of Hull | Visiting professor University of Hull

1994 gostujoči profesor na Univerzi v Ferrari | Visiting professor University of Ferrara

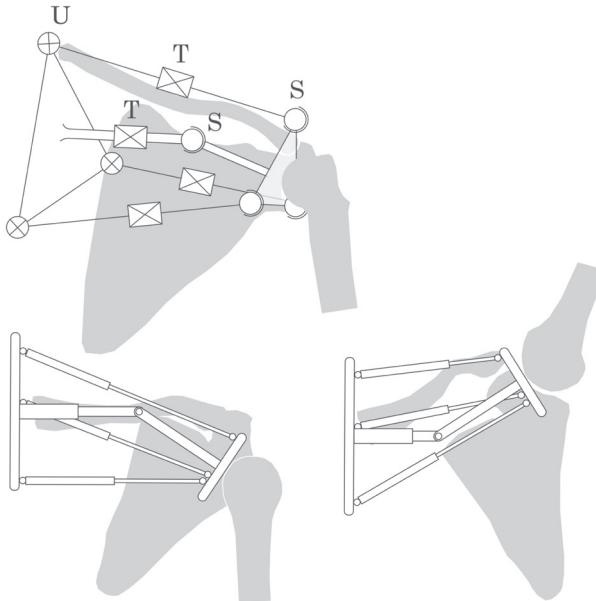
1997 gostujoči profesor na Univerzi v Bologni | Visiting professor at University of Bologna

1999 gostujoči profesor | Visiting professor, Notre Dame University

2003 redni profesor na Univerzi v Ljubljani | Full professor at the University of Ljubljana

2005 direktor IJS | Director JSI

Jadran Lenarčič se je leta 1979 zaposlil na Institutu »Jožef Stefan« in pričel raziskovati na področju robotike ter postal eden izmed pionirjev tega področja pri nas. Mednarodno se je uveljavil z dosežki s področja robotske kinematike. Bil je začetnik in je do danes predsednik mednarodnih simpozijev Advances in Robot Kinematics, ki veljajo za najpomembnejša mednarodna srečanja s tega področja v svetu. Leta 1988 je njegovo metodologijo modeliranja robotske kinematike prevzela prva svetovna enciklopedija robotike. Prof. Lenarčič je raziskoval tudi gibanje človeške roke za namene razvoja humaniodnih robotov. Najbolj odmeven dosežek je robotski ramenski sklop, ki temelji na paralelnem mehanizmu in omogoča človeku podobno gibanje. Sodeloval je pri razvoju prvih industrijskih robotov pri nas ter aplikaciji robotov v industriji. Med letoma 2005 in 2020 je bil direktor Instituta »Jožef Stefan«. Je profesor na Univerzi v Ljubljani in redno predava na Univerzi v Bologni. Je dopisni član Bolonjske akademije znanosti in umetnosti.



Model mehanizma ramenskega sklopa humanoidnega robota v frontalni ravnini. Zgoraj je shema mehanizma, kjer se oznaka U nanaša na univerzalni sklep, T na translacijski sklep in S na sferični sklep. Spodaj je prikazan mehanizem pri gibu abdukcije.

A model of the shoulder mechanism of a humanoid robot in the frontal plane. Above is a scheme of the mechanism where U refers to the universal joint, T to the translational joint and S to the spherical joint. The mechanism in the abduction motion is shown below.

Jadran Lenarčič started his career in robotics at the Jožef Stefan Institute. He has gained international recognition in the field of robot kinematics. He was the initiator and, to this day, is the chairman of the international symposia Advances and Robot Kinematics, considered the most important international meeting in this field. In 1988, his methodology of modeling robot kinematics was published by the world's first Encyclopedia of Robotics. Prof. Lenarčič also studied the movement of the human upper extremity for the development of humanoid robots. The most notable achievement is the robotic shoulder, which is based on a parallel mechanism and allows human-like movement. He participated in the development of the first industrial robots in the country and their applications in the industry. From 2005 to 2020, he was the director of the Jožef Stefan Institute. He is a professor at the University of Ljubljana and regularly teaches at the University of Bologna. He is a correspondent member of the Bologna Academy of Sciences and Arts.

Izbrane dela | Important Works

J. Lenarčič in M. M. Stanisic (2003) Humanoid shoulder complex and the humeral pointing kinematics. IEEE Trans. Robot. Autom. 19:499-507.

J. Babič in J. Lenarčič (2004) In vivo determination of triceps surae muscle-tendon complex viscoelastic properties. Eur. J. Appl. Physiol. Occup. Physiol. 92:477-484.

J. Lenarčič, M. M. Stanisić in T. Bajd (2012) Robot Mechanisms, Springer.

Izbrane nagrade | Selected Awards

1988 Red dela s srebrnim vencem | Work Medal with Silver Wreath

2015 Cavaliere Ufficiale nell'Ordine al merito della Repubblica Italiana

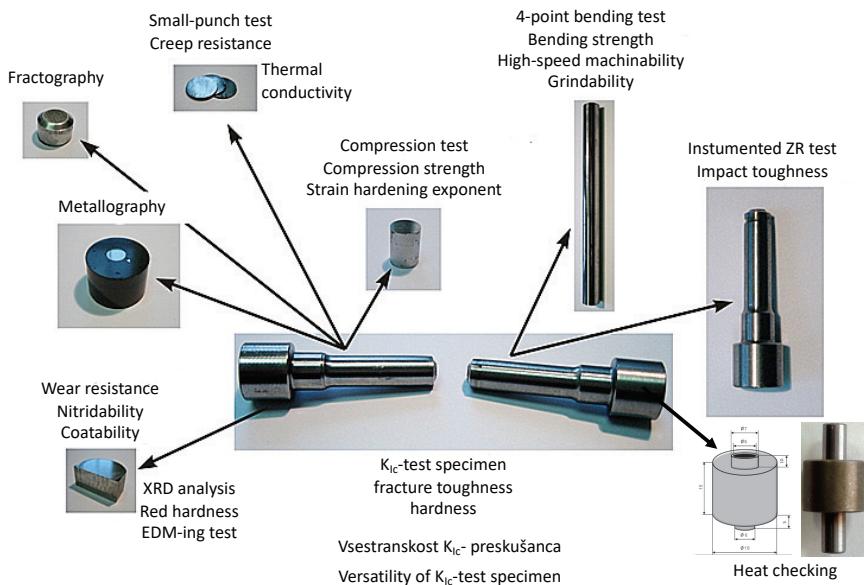
2019 Chevalier de l'ordre national du mérit, Francija | France



Vojteh Leskovšek

- 1947** rojen na Ptiju | Born in Ptuj, Slovenia
1974 diplomira | BSc in Metallurgy
1999 doktorira | PhD (1999) in Metallurgy and Materials, University of Zagreb, Croatia
2009 izredni profesor | Associate Professor, Department for materials, Faculty of Engineering, University of Rijeka, Croatia
2008 delno zaposlen na MPŠ | Employed part-time at Jožef Stefan International Postgraduate School, Ljubljana, Slovenia
2015 izredni profesor | Associate Professor, MPŠ, Ljubljana

Na Inštitutu za kovinske materiale in tehnologije je leta 1985 ustanovil prvi center za vakuumsko toplotno in kemotermično obdelavo orodnih in hitroreznih jekel v Sloveniji. Takrat najso-dobnejša vakumska peč IPSEN VTTC-324R, ki je bila podlaga za tehnološke raziskave na področju brezoglične, okolju prijazne in energetsko varčne vakuumsko toplotne obdelave orodij, je omogočila, da smo s ciljno usmerjenimi raziskovalno-razvojnimi projektmi slovenskim orodnjarnam v najtežjem obdobju njihovega prestrukturiranja omogočili relativno hiter prehod iz konvencionalne na vakuumsko toplotno obdelavo orodij. Na osnovi izkušenj in dobrih rezultatov smo leta 1993 na IMT-ju investirali v prvo plazemsko tehnologijo nitriranja v pulzirajoči plazmi, ki omogoča kontrolirano modificiranje površine kovinskih materialov. Reaktor za nitriranje v pulzirajoči plazmi METAPLAS-ION je izdelan po naših zahtevah in najnovejših spoznanjih za nitriranje kompleksnih orodij in strojnih delov, izdelanih iz jekla, titana in titanovih zlitin.



Pri raziskovalnem delu so stroški eksperimentov pomembni, zato po meritvi lomne žilavosti dele K_{Ic}-preiskušancev uporabimo še za analizo mikrostrukture in meritve ostalih mehanskih, triboloških in tehnoloških lastnosti, ki so pomembni za razumevanje obnašanja orodnih in hitroreznih jekel v praksi.

The costs of experiments are important. After determination of fracture toughness, parts of K_{Ic}-test specimens are used to determine other mechanical, micro-structural, tribological and technological properties, necessary for understanding the behavior of tool and high-speed steels in practice.

In 1985, I established the first center for vacuum heat treatment and surface engineering (VHT & SEC) of tool steels and high-speed steels in Slovenia at the Institute of Metals and Technology. Then the most advanced vacuum furnace IPSEN VTTC-324R, which was the basis for technological research in carbonless environmentally friendly and energy-efficient vacuum heat treatment of tools and dies, offered the possibility of targeted R & D projects for Slovenian toolmakers in the toughest period of their restructuring and allowed a relatively rapid transition from conventional heat treatment in vacuum heat treatment of tools and dies. On the basis of this experience and good results, IMT was the first in the country to invest in the pulsed plasma nitriding technology in 1993. The reactor for pulsed plasma nitriding METAPLAS-IONON was built according to our requirements and the latest knowledge on nitriding of complex tools and dies and for steel, titanium, and titanium alloy parts.

Izbrana dela | Important Works

V. Leskovsek, B. Ule, B. Liscic (2002) Relations between fracture toughness, hardness and structure of vacuum heat-treated HSS; JMPT.

V. Leskovšek, M. Godec, P. Kogej (2014) Strengthening via the Formation of Strain-Induced Martensite and the Effects of Laser Marking on the Microstructure of Austenitic Stainless Steel, M&MatTransA.

V. Leskovšek, B. Podgornik (2016) Tool Steels: Fracture Toughness. Encyclopedia of Iron, Steel, and Their Alloys, T&F.

P. Kogej, V. Leskovšek (2012) Method of manufacturing magnetic substrate for encoder, International Patent WO 2012/117230 A1.

Izbrane nagrade | Selected Awards

2008 The International Federation of Heat Treatment and Surface Engineering Award for outstanding, globally recognized and significant contributions to the development of heat treatment and surface engineering

2016 Plaque prof. dr. H. C. Ciril Rekar" for lifetime achievement in the field of heat treatment of metals and surface engineering



Matjaž Lukač

- 1979** diplomira | Degree in physics, University of Ljubljana
1985 magistriра | Master's in laser physics, University of Ljubljana
1986 doktorira | PhD in physics
1984–1988 raziskovalec | Graduate student and postdoctor, University of California, Berkeley
1986 raziskovalni sodelavec | Research associate, Josef Stefan Institute, Ljubljana
1990–1997 vodja R&R | R&D Manager and Director of Laser Division, Fotona, Ljubljana
1993 MBA | MBA, IEDEC, Brdo pri Kranju
1997–2000 član uprave | Executive board member, Slovenian Development Corporation, Ljubljana
2010 predsednik | president, Slovenian Engineering Academy
2000– predsednik uprave | CEO, Fotona, Ljubljana

Dr. Lukač združuje kariero managerja in aktivnega razvijalca ter raziskovalca na področju fizike laserskih izvorov in uporabe laserjev v medicini. Večino svoje kariere je močno vpet tako v aplikativni razvoj v visoko-tehnološkem podjetju Fotona kot v raziskave na Inštitutu Jožef Stefan, kar dokazuje več kot 120 originalnih znanstvenih objav in več kot 15 podeljenih mednarodnih patentnih družin. V obdobju po osamosvojitvi Slovenije je kot član uprave Slovenske razvoje družbe aktivno prispeval k razvojnemu prestrukturiraju slovenskih tehnoloških podjetij. Kot vodja razvoja in kasneje kot predsednik uprave podjetja Fotona je prispeval k hitri rasti tega globalnega medicinskega laserskega podjetja, ki se uvršča med 5 najboljših podjetij v Sloveniji. V preteklem obdobju je bil predsednik Inženirske akademije Slovenije in član Sveta za znanost in tehnologijo Republike Slovenije. Dr. Lukač je tudi predsednik Akademije za laserje in zdravje.



Pod Lukačevim vodstvom so v obdobju zadnjih 30 let razvili večje število laserskih naprav in kliničnih protokolov za delo v dermatologiji, zobozdravstvu, ginekologiji, urologiji in kirurgiji.

Dr. Lukač has been involved in the development of numerous medical devices and clinical protocols that are being used worldwide by medical professionals in the field of dermatology, dentistry, gynecology, urology, and surgery.

Dr. Lukač has been pursuing a joint career in R&D and business management. During most of his career, he has been actively involved in the development of solid-state medical lasers in a high-tech company Fotona and the research of laser-tissue interactions at Institute Jožef Stefan, resulting in over 120 original scientific publications. Following the declaration of independence by Slovenia, dr. Lukac actively contributed as a member of the Slovenian Development Corporation's management board to restructuring the Slovenian high tech industry. As the R&D manager and later as the president of the management board of Fotona, he has contributed to the rapid growth of this global medical laser company. Dr. Lukač is an inventor of over 15 international patent families in laser physics and laser medicine, has served as the president of Slovenian Engineering Academy, and as a member of the Council for Science and Technology of the Republic of Slovenia. He is currently also the president of Laser and Health Academy.

Izbrane dela | Important Works

Lukač M et al. (1989). Spin-spin cross relaxation and spin Hamiltonian spectroscopy by optical pumping of Pr³⁺. Phys Rev A (39).

Lukač M et al. (2019) Variable heat shock response model for medical laser procedures. Lasers Med Sci 34.

Lukač M et al. (2020) Characteristics of bubble oscillations during laser-activated irrigation of root canals and method of improvement. Lasers Surg Med.

Izbrane nagrade | Selected Awards

1983 Iskrina nagrada za dosežke | Iskra's Award for extraordinary achievements

1983 V. F. Lenzen Memorial Scholarship Award, University of California, Berkeley

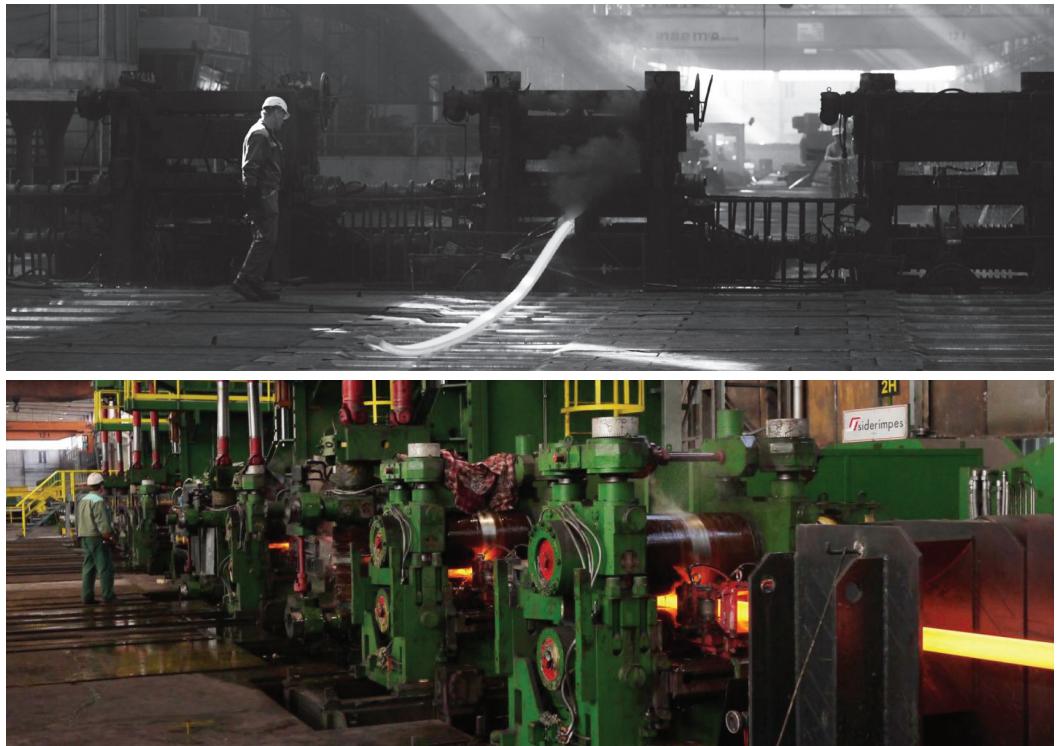
1987 Fullbrightova štipendija | Fulbright Scholarship



Marjan Mačkošek

- 1977** diplomira na strojni fakulteti v Mariboru | Degree in Engineering, University of Maribor
1978 uvajanje CNC-tehnologije v proizvodnji valjev | Introduction of CNC technology
1990 vodenje projekta izdelave industrijskega robota nosilnosti 100 kg | Leads a project on design of industrial robot
1989–1997 sodelovanje pri reorganizaciji Železarne Štore v samostojna podjetja in prestrukturiranju Slovenskih železarn | Restructuring of Slovenian steel industry
2015–2017 predsednik Gospodarske zbornice Slovenije | President, Chamber of Commerce and Industry of Slovenia
1997–2018 vodenje podjetja Štore Steel, ki je pomemben dobavitelj specialnih jekel avtomobilski industriji | Director, Štore Steel

Slovenske železarne, ki so bile v začetku devetdesetih let podržavljene, so žezele optimizirati in racionalizirati proizvodne kapacitete, zato so združile proizvodnjo jekla lokacij Ravne in Štore. Tako imenovani dolgi program je predstavljal proizvodnjo ogljikovih in legiranih jeklenih palic. Po nekajletnem delovanju združenega podjetja se je ugotovilo, da to ne deluje tako, kot je bilo zamišljeno, čeprav je bila sama ideja dobra. Slovenske železarne, d. d. so se odločile, da je potrebno v Štorah ustanoviti novo jeklarsko podjetje in ga pripraviti za prodajo. Privatizacija Slovenskih železarn je bila načrtovana že ob njihovem podržavljenju in s programom sanacije, kar je bilo urejeno s sprejetjem ustreznih zakonov. Današnje podjetje Štore Steel, kljub svoji majhnosti in dejству, da se je večkrat menjalo lastništvo, ostaja uspešen nišni dobavitelj specialnih jekel, po principu »just in time«, končnim kupcem, direktno s proizvodnega procesa. Podjetje to zagotavlja ob podpori moderne proizvodne tehnologije, sploščene organizacijske strukture ter visoko usposobljenega strokovnega kadra.



Tehnološki preskok—od fizičnega dela do visokega nivoja avtomatizacije.

A technological jump—from manual labour to a high level of automation.

The remnants of the old “Štore ironworks,” dating from the mid 19th century, have evolved as a series of smaller companies, each successful in their niche field. Their common market is the European and world market. Štore Steel is the most prominent leading company in this industrial zone, now called “Štore II.” Together all the companies are exploiting the advantages of a joint industrial space. Štore Steel is a niche supplier of unique steel grades for the automotive industry. Most of the goods are being delivered using a “just in time” principle coming directly from the manufacturing lines. This model is supported by modern manufacturing techniques, a lean organizational structure, and expert and highly qualified employees.

Izbrane nagrade | Selected Awards

- 1977** najboljši diplomant Občine Celje | Best graduate in Celje municipality
- 1978–1991** prejemnik več priznanj in nagrad za inovacije | Innovation awards
- 2012** nagrada GZS za izjemne gospodarske in podjetniške dosežke | Chamber of Commerce and Industry of Slovenia award



Marko Marinček

- 1963** rojen v Ljubljani | Born in Ljubljana
- 1989** diplomira iz sisanja svetlobe v SmC* tekočem kristalu | Degree, thesis on scattering of light in SmC* liquid crystal, University of Ljubljana
- 1990** magistrira iz raziskave Braggovega sisanja svetlobe na akustičnih valovih v vlaknih iz monokristala | defends his master's thesis on investigation of Bragg scattering of light by acoustic waves in a single crystal fibre, University of Strathclyde
- 2000** doktorira iz raziskav časovnega razvoja EM polja v sunkovnih laserjih | defends his PhD thesis on time dependent EM field characterization in pulsed lasers, University of Ljubljana

Strokovno delo Marka Marinčka je usmerjeno v razvoj laserjev, ki jih lahko uporabimo v laserskih napravah najvišjih zmogljivosti. Razvil je računske modele električnega polja v realnih rezonatorjih in omogočajo razvoj svetlobnih virov, ki izpolnjujejo konkretne zahteve različnih aplikacij. Vodil je več projektov, iz katerih so izšle tržno uspešne naprave, predvsem medicinske, ki uspešno tekmujejo s proizvodi najboljših svetovnih proizvajalcev. Pri razvoju teh naprav je prispeval številne originalne konceptualne zamisli, od katerih so mnoge tudi patentno zaščitene. Bil je mentor več diplomantom in doktorandom; nekateri so sedaj uspešni vodje projektov. V podjetju Fotona je bil eden od ključnih akterjev pri vzpostavitvi sistema nenehnih izboljšav; prizadeva si za racionalizacijo poslovnih procesov.



Laserska naprava LightWalker, razvita in proizvedena v podjetju Fotona, je namenjena obravnavi širokega spektra zobozdravstvenih aplikacij. Zaradi vpeljanih naprednih tehnologij je svetovno uveljavljena, deležna je bila številnih nagrad in jo uporabljajo zobozdravniki po celiem svetu.

The LightWalker laser device, developed and manufactured by Fotona, is designed to address a wide range of dental applications. Due to the introduction of advanced technologies, it has been implemented globally, earned numerous awards, and is being used by dentists all over the world.

Marko Marinček is engaged in developing lasers, which can be incorporated into the highest performance laser devices. The electric field models in resonators he developed make possible the realization of light sources that meet the requirements for specific applications. He has coordinated many commercially successful projects, resulting in particular in the medical field, resulting in products, which successfully compete with world-renowned manufacturers. He has contributed original concepts and ideas, many of which are patent-protected. He has supervised several graduates and doctoral students, some of whom are now successful project managers. At Fotona, he was one of the key players in establishing a continuous improvement system and continues to strive to rationalize the business process.

Izbrana dela | Important Works

Marinček M, Lukač M, Čopič M (2000) Time-dependent EM field characterization in pulsed lasers, IEEE journal of quantum electronics, 36: 502-508.

Marinček M, Cencic B, Laser system - optical arrangement for guiding a laser beam from the laser source along an optical path in the articulated arm to a target location: patent EP1985254 and US7778306B2.

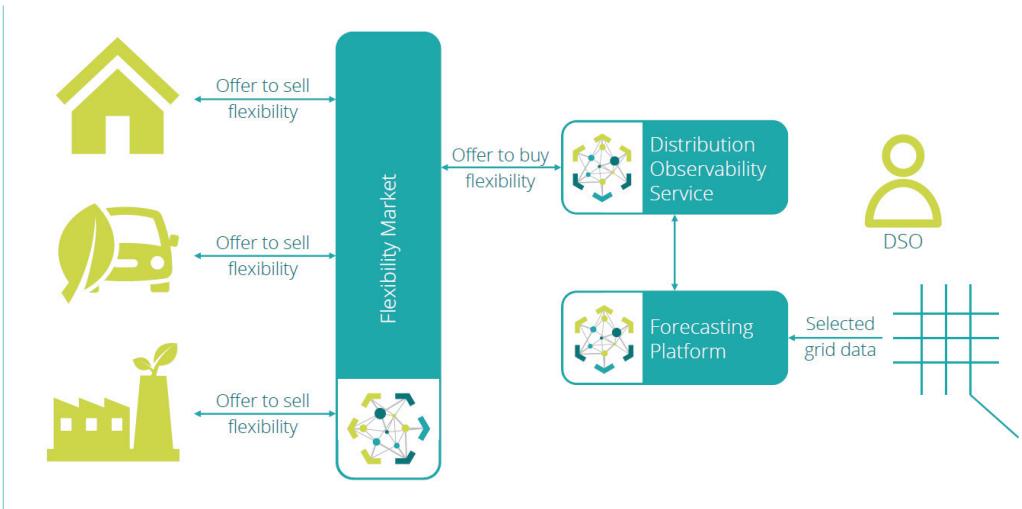
Dental laser device LightWalker - project management (2011).



- 1945** rojen | Born in Pivka
- 1969** diplomira iz termodinamike in energetike | Degree in Thermodynamics and energy engineering, University of Ljubljana
- 1973** magistrira | Master's, thesis on Stochastic analysis of signals, University of Ljubljana
- 1973** podiplomski študij | Postgraduate research in heat transfer & two-phase flow, Centre d'Etudes Nucleaires de Grenoble
- 1974** vodja projekta | Project manager, Safety analyses and PSAR for NPP Krško
- 1987** doktorira iz tlačnih nihanj pri vrenju | PhD on pressure phenomena in boiling, University of Ljubljana
- 1987** soustanovitelj in direktor | Co-founder and CEO of INEA d.o.o.
- 1996** vodja projekta | Project manager PECS Plastic extruder control system
- 2016** direktor KC STV | Head CC ACT Competence centre for Advanced Control Technologies
- 2016** Scientific and Technical Manager, H2020 IA Project GOFLEX

Zoran Marinšek

Dr. Zoran Marinšek se je v začetku raziskovalno in strokovno ukvarjal s prenosom topote in zvočnimi pojavi v dvofaznem toku ter varnostnimi analizami jedrskih elektrarn, nato pa z učinkovito rabo energije z vodenjem procesov in sedaj z vodenjem fleksibilnosti v proizvodnji in odjemu energije v procesih trgovanja z energijo v pametnih omrežjih. Je soavtor vrste inovacij, tehničnih izboljšav in predlogov na področju tehnologije vodenja procesov, pa tudi poslovnih inovacij, npr. »linked third party«. Ima bogate izkušnje z vodenjem raziskovalno-razvojnih projektov, skupin, visoko-tehnološkega podjetja; ter vodenjem konzorcijskih projektov podjetij in raziskovalnih institucij, tako domačih kot mednarodnih (OP5, OP7 in H2020). Je soustanovitelj INEA d.o.o., prvega odcepjjenega podjetja IJS in od ustanovitve leta 1987 do leta 2004 njegov direktor in glavni direktor. Od 2010 je vodja in od 2016 direktor Kompetenčnega centra za sodobne tehnologije vodenja. Je pobudnik in prvi direktor Japonsko-evropskega tehnološkega središča za nove tehnologije vodenja in energetike – JETNET, EGIZ – ustanovljenega v 2013.



Sistem GOFLEX upravlja proizvodnjo in porabo energije na lokalnem nivoju, od spodaj navzgor. Odjemalci sodelujejo neposredno tako, da ponujajo fleksibilnost v proizvodnji in/ali porabi energije na trgu fleksibilnosti. V demonstriranem primeru je kupec SoDo; do fleksibilnosti dostopa s ponudbo za nakup.

The GOFLEX system manages energy production and consumption at the local level, from the bottom up. Prosumers participate directly by offering their flexibility in energy consumption and/or production on the Flexibility market. In the case illustrated above, the buyer is Distribution System Operator (DSO) and it accesses this flexibility by placing a buy offer.

Zoran Marinšek is a researcher and manager. In the course of his career, he accumulated experience in several research fields and topics. During his post-graduate studies and the early part of his career at the Institute Jožef Stefan, he focused on the stochastic analysis of signals, which he applied in experimental studies of pressure phenomena in boiling; his work at Centre d'étude Nucléaires de Grenoble in the area of heat transfer and two-phase flow reinforced its nuclear engineering character which led to applied engineering work in safety analyses and PSAR of NPP Krško and safety instrumentation of NPP. Subsequently, he moved out of nuclear engineering to computer-controlled systems in industry and internal energy systems and finally to flexibility management in the energy trading processes in Smart Grids, where his current interests are focused. He combined his R&D work with management ranging from collaborative R&D&I projects (national and international, some in Framework Programmes and H2020) to a high-tech start-up, technology network, and competence center.

Izbrana dela | Important Works

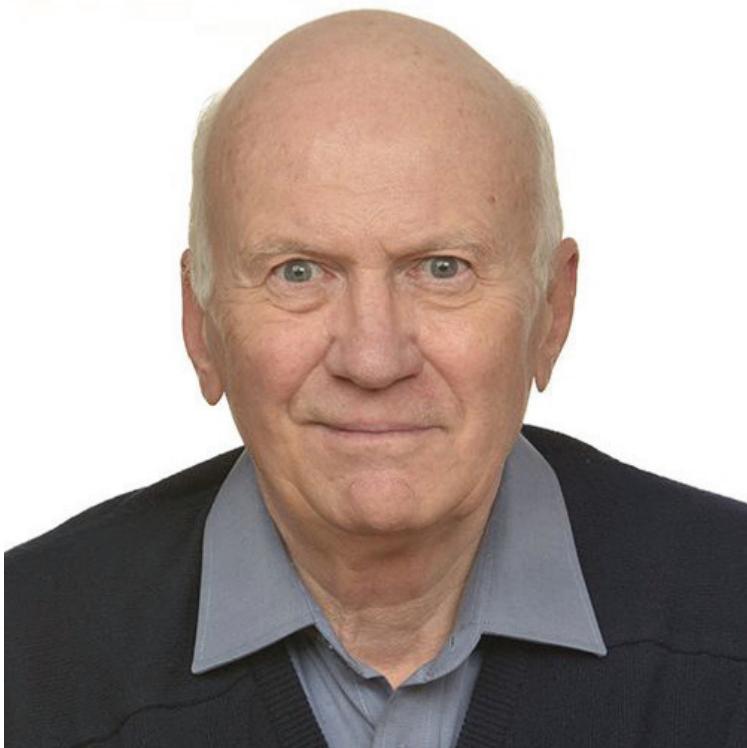
GOFLEX – Generalized Operational FLEXibility for Integrating Renewables in the Distribution Grid, pr. No: 731232, H2020-LCE-2016-SGS, <https://goflex-project.eu>.

S. Gerkič, Z. Marinšek, et. al. (2006) Advanced control algorithms embedded in a programmable logic controller. Control Eng. Pract. 14(8):935-948.

N. G. Rasschin, Z. Marinšek, et al. (1977) Kritičeskie uslovija pri nestacionarnom istečenii dyuhfaznoj sredi pri obrije truboprovoda. Teplofiz. vys. temp. 15:589.

Izbrane nagrade | Selected Awards

- 1997 Zlati znak | Golden Plaque, Institute J. Stefan
- 2013 World Smart Grid forum 2013, Best poster award for a very significant contribution in the field of Smart grids: Efficiently managing more renewable energy using explicit demand and supply flexibilities, Doms A., Z.Marinšek, T.B. Pedersen, MIRABEL, FP7 project, co-funded under pr. no.248195



Drago Matko

1947 rojen v Trbovljah | born in Trbovlje, Slovenia

1971 diplomira iz adaptivnih sistemov | Degree, thesis on adaptive systems, University of Ljubljana (UL)

1973 magistrira | master's UL

1976 doktorira iz adaptivnih sistemov | doctorate on adaptive systems, UL

1977 docent | assistant professor, University of Ljubljana

1980 Humboldtov štipendist | Humboldt fellow, Institute of control engineering University of Darmstadt, Germany

1988 redni profesor | full professor, UL

1995 gostujući profesor | visiting professor, Institute of Space and Astronautical Science Tokyo, Japan

2015 gostujući profesor | visiting professor, University of Gelsenkirchen, Germany

Prof. Matko je v svojih učbenikih, napisal jih je šest in prevedel enega, med drugim uvedel teorijo diskretnih sistemov, ki predstavlja teoretično osnovo modernim komunikacijam in vodenju sistemov. Pri svojih raziskavah na področju adaptivnih sistemov se je povezal s svetovno priznanimi strokovnjaki kot štipendist Humboldtovega sklada in v okviru številnih projektov na Inštitutu za regulacijsko tehniko Tehniške univerze v Darmstadt. Strokovno raziskovalno delo na področju uporabe metod adaptivnega vodenja na vesoljskih transportnih sistemih je nadaljeval na Inštitutu za vesoljske in astronavične znanosti (ISAS – The Institute of Space and Astronautical Science) v Tokiu na Japonskem. Poleg znanstvenoraziskovalnega in pedagoškega dela je sodeloval pri ustanavljanju in je največ pripomogel k mednarodni uveljavitvi nekaterih slovenskih strokovnih združenj. Bil je ustanovni član in prvi predsednik Zveze astronaučnih in raketnih organizacij Slovenije, ustanovni član in prvi tajnik Društva avtomatikov Slovenije, pozneje tudi njen predsednik.



Z robotskim nogometom je Matko dvignil motiviranost študentov in združil znanstvenoraziskovalno in pedagoško delo z zabavo in tekmovanjem. Ekipa ljubljanske Fakultete za elektrotehniko je pod njegovim vodstvom osvojila več prvih mest na evropskih in dve tretji mestih na svetovnih prvenstvih.

With robotic soccer, Matko raised students' motivation and combined scientific research and pedagogical work with fun and competition. Under his mentorship, the Faculty of Electrical Engineering team in Ljubljana won several first places at European and two third places at world championships.

Prof. Matko worked professionally in adaptive systems and modelling, and in this field, he co-authored two books with Prentice Hall publishers. He brought the experience he gained at the Institute of Automatic Control and Mechatronics of the Technical University of Darmstadt and the Institute of Space and Astronautical Sciences back to his homeland. He used robotic soccer to motivate his students. In the exams, he introduced an alliance-professor-student strategy and a student-grade competition. After completing his academic career, he worked at the Space.si Center of Excellence in the design of the first Slovenian satellite Nemo HD, which was launched into space on September 3, 2020. He also worked at the Pipistrel Ajdovščina aircraft factory on the development of battery management systems.

Izbrana dela | Important Works

R. Isermann, K.-H. Lachmann, D. Matko (1992) Adaptive control systems. New York: Prentice Hall.

D. Matko, B. Zupančič, R. Karba (1992) Simulation and modelling of continuous systems: a case study approach. New York: Prentice Hall.

D. Matko in sod., ur. (1996) Uporaba vesoljskih tehnologij. Radovljica: Didakta, 1996.

Izbrane nagrade | Selected Awards

1973 nagrada dr. Vratislava Bedjanča | Award for master thesis

1988 nagrada sklada Borisa Kidriča | Award for work on computer-aided control systems

2000 Vidmarjeva nagrada | Award of the Faculty of electrical engineering University of Ljubljana for pedagogical achievements

2003 Zoisova nagrada | Zois award for scientific achievements

2013 Zlata plaketa UL | Gold Plaque, University of Ljubljana



Borut Mavko

1944 rojen v Ljubljani | Born in Ljubljana, Slovenia

1967 diplomira | Undergraduate degree, Fakulteta za elektrotehniko, Univerza v Ljubljani

1972 magistrica | MSc in Nuclear Engineering, Georgia Institute of Technology, Atlanta

1979 doktorira | PhD, Univerza v Mariboru

1998 znanstveni svetnik | Scientific counselor, Institutu Jožef Stefan

1999 redni član | full member, Inženirska akademija Slovenije

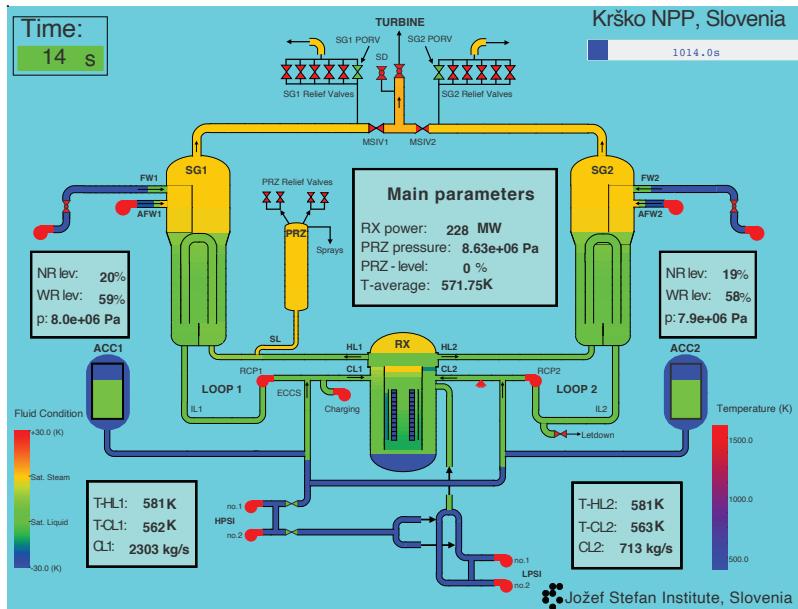
2000 redni profesor | full professor, Fakulteta za matematiko in fiziko, Univerza v Ljubljani

2003 član uprave | Board of Directors, European Nuclear Engineering Education Network

2006 predsednik | Chair, European Atomic Energy Society

2007 urednik | Editor, Elsevier, Journal Nuclear Engineering and Design

Dr. Borut Mavko se z vprašanji jedrske energetike in varnosti ukvarja od leta 1967 na Institutu Jožef Stefan. Sodeloval je pri izgradnji in rednem obratovanju jedrske elektrarne v Krškem, tudi kot član Komiteja za varnost elektrarne. Na institutu je leta 1984 ustanovil Odsek za reaktorsko tehniko, katerega je vse do leta 2009 tudi zelo uspešno vodil. Pod njegovim vodstvom se je odsek razvil v dinamično in mednarodno prepoznavno raziskovalno skupino na področju tehnike in varnosti jedrskih objektov. Odsek je danes s 30 raziskovalci svetovno priznana raziskovalna skupina s tega področja v Sloveniji. Leta 1986 je bil med pobudniki podiplomskega študija jedrske tehnike in bil prvi predstojnik katedre za jedrsko tehniko na Fakulteti za matematiko in fiziko. Magistrski študij je zaključilo 42, doktorskega pa je do leta 2018 končalo 42 študentov. Svoje temeljno znanstvenoraziskovalno delo je usmerjal v študij termo-hidravličnih razmer v enofaznih in dvofaznih sistemih, k celovitosti komponent ter k verjetnostnim in determinističnim analizam nezgod v jedrskih elektrarnah.



Grafični zaslon primernega hladilnega kroga med normalnim obratovanjem.

Graphical display of primary, reactor coolant system during normal operation.

Dr. Borut Mavko main research interests are closely related to nuclear installations, including safety: thermal-hydraulic conditions in one or two-phase system during transients and accidents, systems and components integrity predictions using fracture mechanics methods, probabilistic and deterministic safety analyses, and behaviour prediction of nuclear systems during transients, accidents, including severe accidents. His contributions include probabilistic models for the prediction of U-tubes integrity and fracture probability in steam generators. The models, validated with real plant data, were used to develop maintenance and operations strategies for various nuclear power plants. In the deterministic domain, a method was proposed that enabled qualitative and quantitative assessment of computed predictions. His models developed for dynamic behaviour formed bases for the graphically supported simulator of the nuclear power plant.

Izbrane dela | Important Works

- B. Mavko (1996) Jедрски реактор, Založba Modrijan.
- A. Prošek, B. Mavko (1999) Evaluating code uncertainty - I, II, Nuclear Technology, 126.
- A. Prošek, B. Mavko (2011) Animation model of Krško nuclear power plant for RELAP5 calculations, Nuclear Engineering and Design 241.

Izbrane nagrade | Selected Awards

- 2002 redni član | Full Member, World Innovation Foundation
- 2006 Zlato priznanje | Golden Plaque, University of Ljubljana
- 2007 znanstveni svetnik | Scientific councilor, Slovenske akademije znanosti in umetnosti
- 2013 zasluzni znanstvenik | Scientist Emeritus, Institut Jožef Stefan
- 2018 priznanje ustanovitelja | Founding Member Honor, European Nuclear Engineering Education



Milan Medved

- 1960** rojen v Celju | Born in Celje
1983 diplomira iz širokočelne odkopne metode | Degree, thesis on longwall mining method, University of Ljubljana
1989 magistrira z rudarsko-tehničnim informacijskim sistemom | Master's on computer aided geometrization of mine space, University of Ljubljana
1994 doktorira iz modela ugrezanja nad podzemnim pridobivanjem premoga | PhD on subsidence model of defomations above undermined strata, University of Ljubljana
2002 član poslovodstva | Member of the Board, Holding Slovenske elektrarne
2004 predsednik | President, Chamber of Energetics
2007 direktor Premogovnika Velenje | Manager of Velenje Coal Mine
2008 docent | Assistant professor, University of Maribor

Dr. Medved je diplomiral na smeri rudarstvo na Fakulteti za naravoslovje in tehnologijo v Ljubljani, kjer je tudi zagovarjal doktorsko disertacijo. Na začetku je opravljal različna strokovna, kasneje tudi vodilna dela v Premogovniku Velenje. Bil je med pionirji uvajanja računalniške grafike v slovensko rudarstvo, ki so postavili temelje prvega rudarsko-tehničnega informacijskega sistema. Izdelal je prvi grafično podprt ugrezninski prognozni model nad podzemnim pridobivanjem premoga. Ob vstopu v EU je sodeloval pri preobrazbi slovenskega elektroenergetskega gospodarstva. Bil je med avtorji analize konkurenčnosti slovenskih proizvajalcev električne energije in vodil projekt ugotavljanja nasedlih investicij v elektrogospodarstvu. Ob ustanovitvi Holdin ga Slovenske elektrarne je bil imenovan za člana prvega poslovodstva. Bil je tudi prvi predsednik Energetske zbornice Slovenije. V obdobju vodenja Premogovnika Velenje je veliko pozornost posvečal trajnostnemu razvoju in prestrukturiranju premogovništva. Na Fakulteti za energetiko Univerze Maribor predava pri predmetu Energetski viri.



Forecast of total vertical ground movements caused by exploitation in 2013



Premogovništvo je močno preoblikovalo Šaleško dolino. Današnji pogled na pridobivalno območje dokazuje, da je s skrbnim načrtovanjem in odgovornim odnosom do okolja lahko tudi premogovna dejavnost trajnostno vzdržna.

Coal mining changed the Šalek Valley considerably. Today's view of the exploitation area proves that careful planning and environmental responsibility enable the coal industry to be sustainable too.

The career of Dr. Medved has two main periods. Firstly, he worked on R&D projects at Velenje Coal Mine. In his master's and doctoral studies, he was among pioneers in the implementation of computer science into Slovenian mining, and he developed several applications for computer-aided surveying practice, laid the foundations of the first mining-technical information system, and created the first graphically supported model of subsidence forecast above underground coal mining. The second period of his career is more business-oriented. He participated in several projects of Slovenian implementation of EU regulations and the liberalization of the electricity market. He has co-authored the analysis of the competitiveness of power producers and led a project of stranded investment identification in the Slovenian electricity sector. After that, when Holding Slovenske elektrarne was founded, he was a member of the first management board. When the Energy Chamber of Slovenia was established, he became its first president. At the University of Maribor, he lectures on the subject of Energy sources.

Izbrana dela | Important Works

Medved M, Malenković V, Dervarič E (2011) Restructuring of the coal mining enterprises. Technics technologies education management 6:247-255.

Medved M, Skubin G (2008) Electricity power demand and supply in EU 27 & E Europe. Modern Tendencies in the Development of Energy Mining 21:15-28.

Todorović R, Medved M (1997) Subsidence prediction & land restoration activities. The 23rd IEMSA, Freemantle Australia 46:419-426.

Izbrane nagrade | Selected Awards

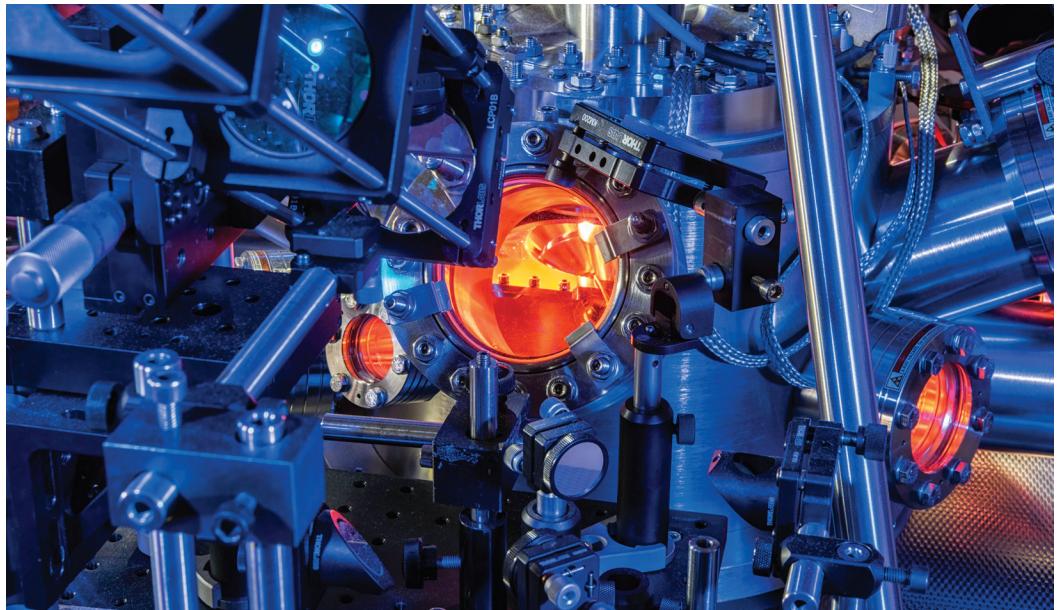
2005 priznanje za uresničevanje ciljev na znanstvenoraziskovalnem, podjetniškem in razvojnem področju, Slovenski nacionalni komite Svetovnega energetskega kongresa WEC | Award for achieving goals in scientific-research, entrepreneurship and development, the Slovenian National Committee of the World Energy Congress



Dragan D. Mihailović

- 1958** rojen v Novem Sadu | Born in Novi Sad, Yugoslavia
- 1979** diplomira iz fizike | Degree in Physics, University of Oxford at Balliol College, UK
- 1983** doktorira iz fizike | DPhil: Clarendon Laboratory, University of Oxford, UK
- 1989–90** Fulbrightov štipendist | Fulbright fellow, UCSB, USA
- 1995** gostujoči profesor | Visiting scientist, Univ. of Oxford, Oxford
- 2001** ustanovil odsek za kompleksne snovi na IJS | Founded the Department of Complex Matter at the Jožef Stefan Institute
- 2002** redni profesor | Full Professor, University of Ljubljana
- 2004** ustanovil Nanocenter | founded Nanocenter
- 2013** ERC projekt za priznane znanstvenike | ERC Advanced grant
- 2016** ERC projekt za dokaz koncepta | ERC proof of concept grant

Prof. dr. Mihailović je vodilni raziskovalec v svetu na področju časovno ločene spektroskopije kompleksnih snovi. Ima pa tudi svetovno priznane prispevke v fiziki visokotemperaturnih superprevodnikov, nizkodimenzionalnih kvantnih materialov ter molekularnega magnetizma. V Sloveniji je uvedel vrsto novih eksperimentalnih področij: ultrahitro lasersko spektroskopijo, fiziko in kemijo fulerenov, molekularno elektroniko in fiziko visokotemperaturnih superprevodnikov. Na IJS je ustanovil Odsek za kompleksne snovi leta 2001. Vodi raziskovalno skupino na področju neravnovesne fizike kompleksnih materialov. Ustanovil je Center odličnosti za nanoznanosti in nanotehnologije (v 2004) ter je njegov direktor. Od leta 2010 je predsednik znanstvenega sveta IJS, od leta 2016 pa tudi predsednik Društva matematikov, fizičev in astronomov Slovenije. Največ pozornosti namenja študiju faznih prehodov v realnem času in ustvarjanju novih eksotičnih kvantnih stanj v snovi pri kontroliranih neravnovesnih razmerah ter razvoju novega spominskega elementa z rekordno hitrostjo in energijsko učinkovitostjo.



Tunelski mikroskop za merite elektronske relaksacije posameznih atomov v realnem času na femtosekundni časovni skali.

Tunnelling microscope for measurements of electronic relaxation of individual atoms in real time on a femtosecond timescale.

Dragan Mihailovic is Head of the Department for Complex Matter at the Jozef Stefan Institute, Director of the CENN Nanocenter, and professor at the Univ. of Ljubljana and the JS International postgraduate school where he is head of the Nanoscience programme. His current interest is in mesoscopic metastable quantum states created through non-equilibrium processes. He has held two ERC grants (AdG, PoC) on ultrafast studies of symmetry-breaking transitions and ultrafast non-volatile memories, respectively. He has had significant achievements recognised in high-temperature superconductivity, molecular nanowires, and molecular magnetism. He has over 500 articles indexed by Google scholar, and over 9900 citations, with H=52. He is the author of more than 10 Nature and Science papers and multiple patents. His previous extensive collaborations include projects with the Nobel laureates K. Alex Muller and Alan J Heeger. He was educated at the University of Oxford (MSc, DPhil), and has won the Zois prize for outstanding achievements in science.

Izbrane dela | Important Works

B. Narymbetov et al. (2000) Origin of ferromagnetic exchange interactions in a fullerene-organic compound, *Nature* 407:883.

M. Remškar et al. (2001) Self-assembly of subnanometer-diameter single-wall MoS₂ nanotubes. *Science* 292:479.

L. Stojchevska et al. (2014) Ultrafast switching to a stable hidden quantum state in an electronic crystal. *Science* 344(6180):177.

Izbrane nagrade | Selected Awards

1986 nagrada Sklada Borisa Kidriča
| Boris Kidrič award

1988 »Honorary member of the High Table«, Christ Church, Oxford, UK

1989 Fullbright Scholarship

2002 Zois prize for outstanding scientific achievements

2005 Leader of the best programme group in Physics in Slovenia

2012 The first researcher from Slovenia to be awarded the European Research Council Advanced Grant

2017 The first researcher from Slovenia to be awarded an ERC »Proof of concept« grant.



Matjaž Mikoš

1959 rojen v Ljubljani | Born in Ljubljana, Slovenia

1983 diplomira na področju gradbeništva – hidrotehnike | Degree in Civil engineering – major in hydraulic engineering, University of Ljubljana

1988 magistrira | Master's, University of Ljubljana, Civil Engineering

1993 doktorira iz rečne dinamike | PhD on river dynamics, ETH Zürich, Switzerland

1994 docent | Assistant professor, University of Ljubljana

1999 izredni profesor | Associate professor, University of Ljubljana

2006 redni profesor za inženirsko hidrotehniko | Full professor in hydraulic engineering, University of Ljubljana

2010 redni profesor za hidrologijo | Full professor in hydrology, University of Ljubljana

Dr. Mikoš je gradbeni inženir, ki se je usmeril na področje hidrotehnike, kjer je strokovnjak za področje vede o vodi (hidrologije) in za področje inženirske hidrotehnike, predvsem hudourništva in procesov v gorskem okolju. V mladosti gornik in mladinski voznik je svoj strokovni izziv našel v preučevanju naravnih procesov v gorskem okolju – plazov, poplav in hudournikov ter z njimi povezanih erozijskih procesov in dinamike naravnih vodotokov. Po desetletnem delu na Vodnogospodarskem inštitutu v Ljubljani in dokončanem doktorskem študiju na ETH Zürich sedaj kot dekan Fakultete za gradbeništvo in geodezijo (UL FGG) vodi programsko skupino, ki razvija orodja in metode za analize in simulacije procesov ter razvoj tehnologij na področju vodarstva in geotehnike. Kot uveljavljen mednarodni strokovnjak je predsedoval do leta 2019 Svetu Vlade Republike Slovenije za varstvo pred naravnimi in drugimi nesrečami, od 2020 pa predseduje Nacionalnemu odboru za Medvladni hidrološki program. Vseskozi si aktivno prizadeva za dvig ugleda inženirskega poklica in stalno skrbi za popularizacijo inženirstva v Sloveniji.



Zemeljski plaz Stože in uničuječ drobirski tok v Logu pod Mangartom novembra 2000 je spremenil Mikošovo življensko pot. Koncept za razbijajoč drobirskega toka in ureditev hudournikov na prizadetem območju je zahteval interdisciplinarno sodelovanje različnih inženirjev pri sanaciji posledic.

The 2000 Stože Landslide and the devastating debris flow in Log pod Mangartom changed Mikoš's life path. The concept of the debris-flow breaker and torrent control works in the affected area required the interdisciplinary collaboration of various engineers in the mitigation of consequences.

Dr. Mikoš is a professor in Hydrology and professor in Hydraulic Engineering and head of the Research Institute on Geo and Hydro Threats, and Head of the UNESCO Chair on Water-related Disaster Risk Reduction - the first UNESCO Chair at the University of Ljubljana. He is also a certified civil engineer, member of the Slovenian Chamber of Engineers. For more than 20 years, Dr. Mikoš has been involved in activities of the International Research Society Interpraevent, based in Klagenfurt, Austria. As a civil engineer, Dr. Mikoš has been involved in the mitigation of large landslides in Slovenia and has made such a significant contribution that UL FGG has been awarded the title of a World Centre of Excellence in Landslide Risk Reduction from 2008 by the International Programme on Landslides. He is currently serving as Vice President of the International Consortium on Landslides, based in Kyoto, Japan.

Izbrane dela | Important Works

Bezak N, Šraj M, Mikoš M (2016) Copula-based IDF curves and empirical rainfall thresholds for flash floods and rainfall-induced landslides. *J Hyd* 541, 272-284.

Šraj M, Brilly M, Mikoš M (2008) Rainfall interception by two deciduous Mediterranean forests of contrasting stature in Slovenia. *Agricultural and Forest Meteorology* 148, 121-134.

Mikoš M (1993) Fluvial Abrasion of Gravel Sediments. *Mitt. VAW ETHZ* 123, 322 p.

Izbrane nagrade | Selected Awards

2009 Zlata plaketa UL FGG | Gold Plaque, University of Ljubljana, Faculty of Civil and Geodetic Engineering

1997 članstvo | membership, New York Academy of Sciences

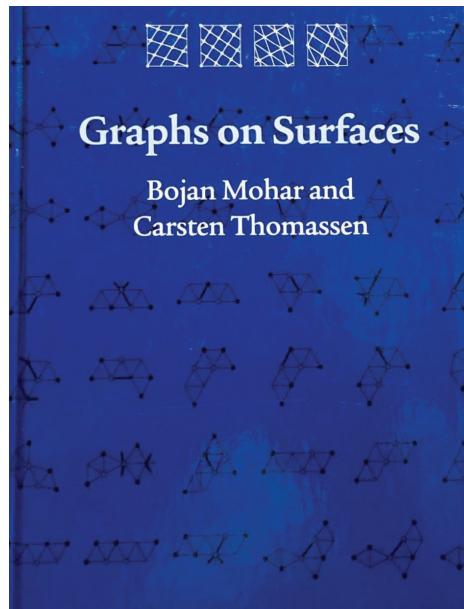
1988–90 štipendija Švicarske konfederacije | Bundesstipendiat an der ETH Zürich



Bojan Mohar

- 1980** asistent | Assistant at Faculty of Mathematics and Physics at University of Ljubljana
- 1986** doktorira | PhD
- 1986–88** podoktorski študij v Kanadi in ZDA | Postdoctoral study in Canada and USA
- 1988** docent | Assistant Professor
- 1991** izredni profesor | Associate Professor
- 1996** redni profesor | Full Professor UL
- 2003–05** dekan FMF | Dean
- 2005** postane | Tier I Canada Research Chair, Simon Fraser University, Canada.
- * ohrani stik in mesto znanstvenega svetnika na IMFM | Keeps dual position as scientific counsellor at the IMFM in Ljubljana

Bojan Mohar je slovenski matematik, njegovo glavno področje dela je teorija grafov in kombinatorika, dodatno pa se ukvarja tudi s teoretičnim računalništvom in z matematično kemijo. Je avtor skoraj 300 znanstvenih člankov, ene monografije, več poglavij v drugih monografijah, treh univerzitetnih učbenikov, številnih prispevkov v zbornikih konferenc. Imel je več kot 60 plenarnih predavanj na mednarodnih konferencah. Deluje kot urednik v najpomembnejših revijah s področja svojega dela.



Monografija o vložitvah grafov na sklenjene ploskve, ki jo je Mohar napisal v soavtorstvu s Carstenom Thomassensem [Graphs on Surfaces, Johns Hopkins Univ. Press, 2001], je postala standardna referenca za področje topološke teorije grafov.

The monograph with Carsten Thomassen about graphs on surfaces [B. Mohar and C. Thomassen, Graphs on Surfaces, Johns Hopkins University Press, 2001] became the standard reference on topological graph theory.

Bojan Mohar is a Slovenian mathematician whose primary research area is graph theory with combinatorics. He is also active in theoretical computer science and mathematical chemistry. He published close to 300 scientific papers, one monograph, several chapters in other monographs, three university textbooks, and many articles in conference proceedings. He has been a plenary speaker at more than 60 international conferences. He serves on editorial boards in the most important scientific journals for his area, including his leading role as the Editor-in-Chief of the Journal of Combinatorial Theory, Series B.

Izbrane dela | Important Works

- B. Mohar, C. Thomassen (2001) Graphs on Surfaces, Johns Hopkins Univ. Press.
- B. Mohar (1999) A linear time algorithm for embedding graphs in an arbitrary surface, SIAM J. Discrete Math 12:6-26.

M. DeVos, L. Goddyn, B. Mohar (2009) A generalization of Kneser's Addition Theorem, Adv. Math. 220:1531-1548.

Izbrane nagrade | Selected Awards

- 2020** AMS Fellow, American Mathematical Society
- 2018** John L. Synge Award, Royal Society of Canada
- 2018** SIAM Fellow, Society of Industrial and Applied Mathematics
- 2010** Euler Medal, Institute of Combinatorics and its Applications
- 2009** Ambassador of Science Award, Slovenia
- 2008** International Academy of Mathematical Chemistry
- 2005, 2012** Canada Research Chair in Graph Theory, Tier I
- 1999** IAS
- 1990** Boris Kidrič Prize, Slovenian Prize for Science
- 1988** Fulbright Scholar



Janez Možina

1945 rojen v Ljubljani | Born in Ljubljana, Slovenia

1969 diplomira in zaposlilev IJS | Graduates and is employed at Joseph Stefan Institute

1973 zaposlilev na Fakulteti za strojništvo | Employed at University of Ljubljana

1976 magistrira | Master's, University of Ljubljana

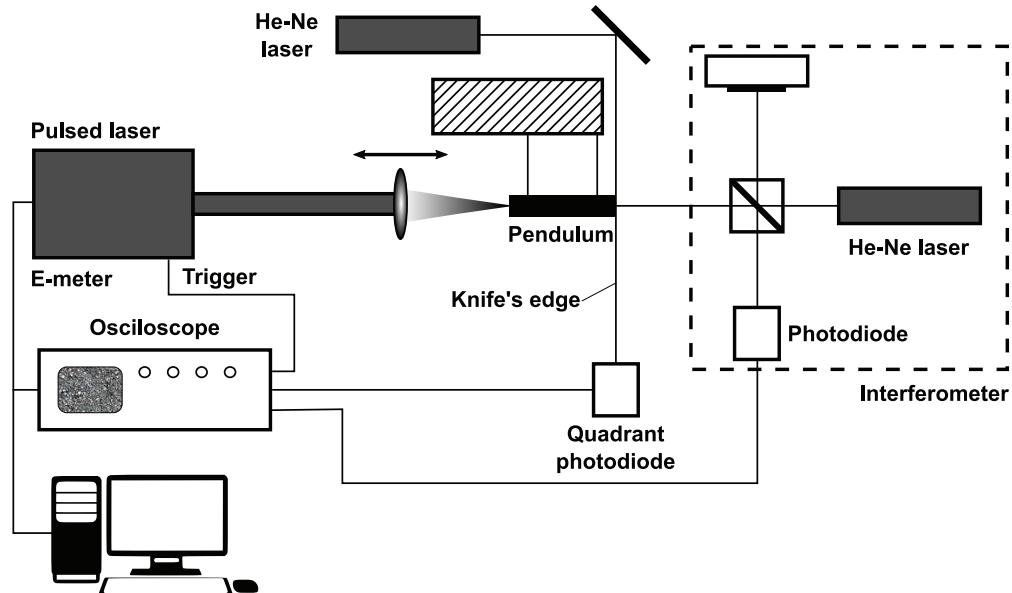
1980 doktorira | PhD, University of Ljubljana

1983 docent | Assistant professor, University of Ljubljana

1995 ustanovitelj in predstojnik Katedre za optodinamiko in lasersko tehniko | Founder and Chair, Department of Optodynamics and Laser Applications

2015–2018 podpredsednik IAS | Vice-President of Engineering Academy of Slovenia

Janez Možina je v desetletjih svojega pedagoškega dela izobilil številne generacije študentov strojništva pri predmetih Fizika, Tehnička fizika in Laserska tehnika. Pedagoško dejavnost na po-diplomskem študiju je uspešno povezoval z raziskavami na področju laserske tehnike in na ta način vzgojil številne raziskovalce ter tako prenesel nova znanja v slovensko gospodarstvo. Pri tem posebej izstopajo nove metode in sistemi laserskega merjenja oblike teles, njihove aplikacije v robotizirani proizvodnji ter nove metode nadzora laserskih obdelovalnih procesov, ki temeljijo na analizi dinamike lasersko povzročenih premikov snovi. Kot sinteza optoakustike in laserskih obdelovalnih procesov je dotelej ločeno obravnavane raziskovalne teme povezal v novo interdisciplinarno znanstveno področje Optodinamika, ki predstavlja pomembno skupno osnovo za raziskave in razvoj laserskih obdelovalnih procesov in posegov v medicini. Nove vsebine je postopoma vpeljal v vse stopnje študija strojništva in tako razširil dotedanjo študijsko smer Mehatronika v novo smer z imenom Mehatronika in laserska tehnika.



Eksperimentalna shema za opazovanje optodinamskih premikov reda velikosti nekaj nanometrov.

Experimental scheme for optodynamic displacements observation of the order of magnitude several nanometers.

The research interests of Janez Možina were first focused on acoustic emission and optoacoustics and later extended to laser material processing and the dynamic aspects of light-material interaction – optodynamics. Based on his research at the Faculty of Mechanical Engineering, he established the Department of Optodynamics and Laser Applications. Together with his doctoral students, he has authored more than 150 scientific journal papers and 200 congress and conference contributions. He is also co-author of several international patents. He has been a supervisor or co-supervisor to 33 doctors of science – most of them now working in the industry. Among the recent outstanding results are the world-first measurements of mechanical waves generated by the elastic reflection of laser pulses on ultra-reflective optical coatings leading to a new dynamic measurement of pulsed light pressure and thus to alternative experimental determination of photon linear momentum.

Izbrana dela | Important Works

J. Možina, R. Hrovatin (1996) Optodynamics-a synthesis of optoacoustics and laser processing. Progress in Natural Science 6:suppl. S709-S714.

J. Možina, J. Diaci (2011) Recent advances in optodynamics, Applied physics B, Lasers and optics 105:557-563.

T. Požar, J. Možina (2013) Measurement of elastic waves Induced by the reflection of light, Physical Review Letters 111:185501.

Izbrane nagrade | Selected Awards

1998 Zoisovo priznanje za pomembne znanstvene dosežke | Zois distinction for important scientific achievements

2012 Zlata plaketa Univerze v Ljubljani | Golden Plaque, University of Ljubljana



Boris Orel

- 1967** diplomira iz vibracijske spektroskopije | Degree, majoring on vibrational spectroscopy, University of Ljubljana
- 1972** doktorira iz spektroskopije sistemov s simetričnimi vodikovimi vezmi | PhD on spectra of symmetric hydrogen bond systems, University of Ljubljana
- 1979** docent | Assistant professor, University of Ljubljana
- 1981** gostujoči raziskovalec | Visiting research fellow, CNRS, Paris
- 1994** vodja Laboratorija za spektroskopijo materialov | Head of Laboratory for Spectroscopy of Materials, National Institute of Chemistry, Ljubljana
- 2007** redni profesor | Full professor, University of Ljubljana
- 2014** zaslужni raziskovalec | Emeritus researcher, National Institute of Chemistry, Ljubljana

Prof. dr. B. Orel, zaslужni raziskovalec (rojen 1943, upokojen 2014) je pričel z raziskovalnim delom l. 1967 na Kemijskem inštitutu pri prof. D. Hadžiju. S pomočjo vibracijske spektroskopije je potrdil obstoj domnevno simetrične vodikove vezi v monokristalih organskih kislin (doktorska disertacija l. 1972), ki je v tistem času z difrakcijskimi metodami še niso dokazali. Prvi je v Sloveniji razvil (od l. 1990 naprej) izdelavo tankih plasti po sol gel postopkih iz raztopin organsko-silicijevih prekursorjev. Izdelal je tanke elektrokromne plasti in trdne ionske prevodnike ter jih uporabil za pripravo elektrokromnih naprav (smart windows) ter študiral s spektroelektrokemijskimi pristopi interkalacijo ionov (Li^+ , H^+ , I^- / I_3^-) v sintetizirane materiale. Pristope sol gel kemije je razširil na pripravo vodooodbojnih finišev za bombažne tekstilije ter za korozionsko zaščito tankih selektivnih plasti za sončne absorberje, kar je tudi patentiral, patent pa skupaj s patentom za izdelavo premazov za sončne absorberje prodal nemškemu proizvajalcu sončnih absorberjev (ALANOD).



Al pločevina za absorberje v sprejemnikih sončne topote s spektralno selektivno prevleko ($\alpha = 0.90$, $\epsilon T = 0.20$). Naš patent (l. 2009, SI 23055 (A)) je odkupil Alanod (DE), zadnje podaljšanje leta 2019. Za izdelavo prevleke za absorber smo uporabili materiale, narejene po sol gel postopkih.

Al-coil with spectrally selective coating ($\alpha = 0.90$, $\epsilon T = 0.20$) used for absorbers in solar thermal collectors. Alanod (DE) bought our patent SI 23055 (A) (2009) and patented it world wide (last extension 2019). For absorber coating fabrication sol gel processing was used.

Prof. Dr. B. Orel, now emeritus researcher, started his scientific carrier at the National Institute of Chemistry (1966), where he worked with Prof. Dr. D. Hadzi. In the course of his PhD studies (1970-1972) he succeeded in finding from infrared spectra measurements evidence for the existence of symmetrical hydrogen bond in some organic acids, which at that time diffraction analysis have not been able to confirm. In 1990, he commenced in Slovenia the manufacture of thin metal oxide films from organic silicone precursors using sol-gel chemistry processing and used them as intercalation/deintercalation materials (for Li^+ , H^+ , I^- / I_3^-) in electrochromic devices (smart windows). Sol-gel processing enabled the manufacture of a variety of organic/inorganic nanostructured coatings and thin films used as water repellent finishes for textile fabrics, hard coatings, and corrosion protective coatings. The latter coatings were patented and patent sold to ALANOD (DE). ALANOD also acquired a patent disclosing fabrication of paint suitable for mass production of solar absorbers (> 5 million m²/year).

Izbrana dela | Important Works

B. Orel et al. (1993) Radiative cooling efficiency of white pigmented paints. Solar Energy 50(6): 477-482.

Vilčnik Aljaž et al. (2009) Structural properties and antibacterial effects of hydrophobic and oleophobic solgel coatings for cotton fabrics, Langmuir, 25(10): 5869-5880.

M. Koželj et al. (2019) Aminosilane modified pigments for spectrally selective coatings, EP 2 261 288 B1, 2019-01-16., 32 pages.

Izbrane nagrade | Selected Awards

- 1986 nagrada Sklada Borisa Kidriča | Boris Kidrič Fund Award
- 2008 Preglova nagrada | Pregl Award
- 2010 Puhova nagrada | Puh Award for the applications of scientific results in industrial processing
- 2009 zlato priznanje za inovacijo | Golden Plaque for innovation, Chamber of Commerce
- 2010 nagrada za prenos tehnologije v prakso | ARRS Technology transfer Award



Stane Pejovnik

1982–1999 direktor, Kemijski inštitut, Ljubljana in visokošolski učitelj, Kemija in kemijska tehnologija, FNT, Univerza v Ljubljani (UL) | Director, National Institute of Chemistry, Ljubljana

1999 redni profesor za materiale, FKKT, UL | Professor of Materials Science, Chemical Technology and Materials Science Dept., Faculty of Chemistry and Chemical Technology, UL

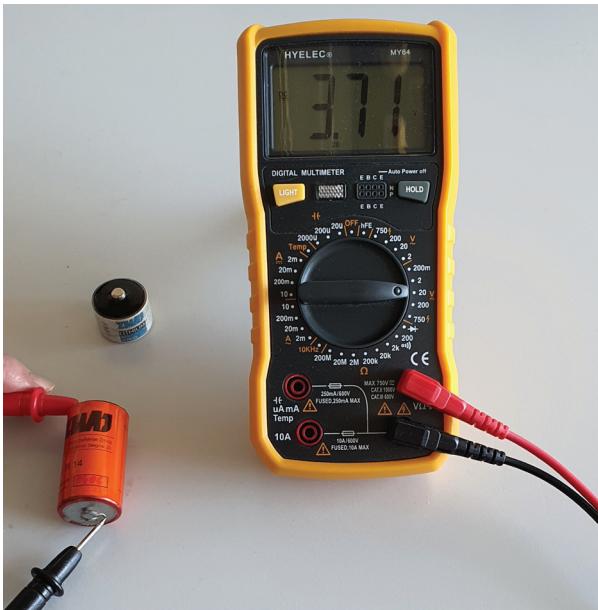
2000–2003 državni sekretar za višje in visoko šolstvo | Secretary of State for Higher Education at the Ministry of Education, Science and Sport

2005–2009 dekan UL FKKT | Dean and Professor of Materials Science

2009–2013 rektor UL | Rector, University of Ljubljana

2013–2015 profesor za materiale | Prof. Emeritus of University of Ljubljana

Na začetku kariere je bilo težišče njegovega raziskovalnega dela (do leta 1980) usmerjeno v proučevanje procesa sintranja v prisotnosti tekoče faze. Znaten del doktorata je potekal na inštitutu Max-Planck v Stuttgartu, ZR Nemčija. Nato je na Kemijskem inštitutu ustanovil in dolga leta vodil skupino za elektrokemijo materialov, ki je danes po vsem svetu uveljavljena pri pripravi in karakterizaciji elektrod za Li-ionske in post-litijeve baterije. V soavtorstvu je objavil več kot 100 člankov v uglednih revijah, je soavtor 5 mednarodnih patentov, sourednik 6 knjig. Bil je vabljeni predavatelj na uglednih tujih univerzah po vsem svetu. Dvakrat so ga študentje izbrali za profesorja leta. Vedno je bil obdan z nadarjenimi mladimi ljudmi, od katerih jih je več kot 30 doktoriralo in več kot 70 diplomiralo pod njegovim mentorstvom. Bil je gostujoči profesor v ZDA in Avstriji. Je redni član večih mednarodnih akademij. Bil je dekan Fakultete za kemijo in kemijsko tehnologijo in rektor Univerze v Ljubljani. V letu 2012 je prejel častni doktorat Clarkson University v ZDA.



Prve Li baterije (sistem Li/tionil klorid), narejene v celoti v Sloveniji leta 1986. Naredila jih je skupina sodelavcev FKKT, KI B. Kidrič in Tovarne baterij Zmaj pod vodstvom prof. Pejovnika. Baterije so znane po izjemni življenjski dobi in iz slike je razvidno, da delujejo še v letu 2020.

First Li batteries (Li/thionyl chloride system) made in Slovenia in 1986 by a group from the FKKT, Institute of Chemistry and Zmaj Battery Factory under the leadership of Prof. Pejovnik. The batteries are known for their exceptional lifespan and the picture shows that they are still active in 2020.

Dr. Pejovnik's research objectives have been focused on the investigation of modern Li/SOCl₂ batteries from the materials science perspective, including studies of phase equilibrium in Li-Al and Li-B binary systems. In his personal bibliography, he has over 200 scientific (reviewed) publications, including more than 100 articles in high-ranking international journals with high SCI. He was and still is a member of international editorial boards of scientific journals as well as a member of international associations and academies. He has held a number of positions in international organizations reflecting his international reputation among the researchers in the field. These achievements represent significant and key contributions to the development of materials science and engineering in Slovenia and globally. He was a member of international boards for a number of Conferences on sintering and materials science held in Europe. He has served as a chairman of sessions at Conferences on sintering, materials research, stereology, and battery research all over the world.

Izbrana dela | Important Works

R. Dominko, M. Bele, M. Gaberšček, M. Remškar, D. Hanžel, S. Pejovnik, J. Jamnik (2005) Impact of the Carbon Coating Thickness on the Electrochemical Performance of LiFePO₄/C Composites. *J. of the Electrochemical Society* 152: a607-a610.

B. Genorio, D. Strmčnik, R. Subbaraman, D. Tripkovic, G. Karapetrov, V. Stamenković, S. Pejovnik, N. Markovic (2010) Selective catalysts for the hydrogen oxidation and oxygen reduction reactions by patterning of platinum with calix[4]arene molecules. *Nature materials*. 9:12, 998-1003.

Izbrane nagrade | Selected Awards

1994 ambasador Republike Slovenije v znanosti | Ambassador of Science of the Republic of Slovenia (National award for outstanding research and international promotion of the Slovenian Science)

2012 častni doktorat, Clarkson University, Potsdam, ZDA | Dr.honoris causa - Clarkson University, USA

2016 zaslužni profesor Univerze v Ljubljani | Prof. Emeritus of University of Ljubljana

2020 Zoisova nagrada za življenjsko delo | Zois Lifetime Achievement Award



Marjan Pipenbacher

- 1957 rojen v Ljubljani | Born in Ljubljana, Slovenia
1981 diplomira na FGPA v Mariboru | Degree in Civil Engineering, University Maribor
1980 zaposlen v Gradisovem inženirskem biroju | Employed in Gradis engineering office
1991 ustanovi inženirski biro Ponting d.o.o | Founder of Ponting Consulting Engineers
2002 ustanovi specializirani razvojno-konzultantski biro Pipenbacher Consulting Engineers | Founder of specialized research and consulting engineering firm, Pipenbacher Consulting Engineers
2000–vabljeni predavatelj | Guest lecturer, Faculty of Civil Engineering, University of Maribor

Marjan Pipenbacher je mednarodno uveljavljen projektant mostov in ostalih zahtevnih inženirskih objektov. Je partner in direktor v podjetju Ponting d.o.o. ter ustanovitelj in direktor specializiranega razvojno-raziskovalnega in konzultantskega biroja Pipenbacher Consulting Engineers. Je tudi vabljeni predavatelj na Fakulteti za gradbeništvo, prometno inženirstvo in arhitekturo Univerze v Mariboru. Njegovo strokovno in raziskovalno delovanje je usmerjeno predvsem na snovanje in graditev zahtevnih inženirskih objektov in mostov z velikimi razponi, potresnih analiz, CFD-analiz, dinamičnih analiz vetra na konstrukcije in testiranja v vetrovnikih. Je avtor in projektant številnih mostov in viaduktov tako v Sloveniji kot v tujini, med njimi viadukta Črni Kal, mostu s poševnimi zategami na polotok Pelješac na Hrvaškem, več mostov v Turčiji in največjega železniškega mostu v Izraelu. Je tudi eden od avtorjev z odkupom nagrajene natečajne rešitev novega mostu preko reke Donave v Budimpešti.



Viadukt Črni Kal nedvomno predstavlja enega od najzahtevnejših premostitvenih objektov, zgrajenih v Sloveniji. Krakasto razvejani stebri, globoko temeljenje na vodnjakih, razponi preko 140 m uvrščajo viadukt v projektantskem in izvedbenem smislu med najzahtevnejše objekte tudi v svetovnem merilu.

The Črni Kal viaduct is undoubtedly one of the most demanding bridges built in Slovenia. The ramified piers, deep foundation on wells, spans over 140 m place the viaduct both in design and constructional respect among the most demanding structures also worldwide.

Marjan Pipenbauer is an internationally recognized designer of bridges and other demanding engineering structures. He is a partner and director in the Ponting design office and founder and director of the specialized research and development and consulting company Pipenbauer Consulting Engineers. He is also a visiting lecturer at the Faculty of Civil Engineering, University of Maribor. His professional and research work is focused primarily on the design and construction of complex engineering structures and bridges with large spans, seismic analysis, CFD analysis, dynamic wind analysis, and testing in wind tunnels. He is the author and designer of numerous bridges both in Slovenia and abroad, including the Črni Kal viaduct, the bridge to Pelješac peninsula in Croatia, several bridges in Turkey, and the largest railway bridge in Israel. He is also one of the authors of the competition-winning design for the new bridge over Budapest's Danube River.

Izbrana dela | Important Works

Črni Kal, the largest viaduct in Slovenia (2004) with total length 1065 m, pier heights up to 95 m and maximal span lengths 141 m.

Nissibi (2016) and Komurhan (2020) cable-stayed bridges over Eufrat river in Turkey with total lengths 610 m and 660 m and navigation spans 410 and 380 m.

Pelješac multi-span extradosed cable-stayed bridge in Croatia (under construction) with total length 2404 m and central spans 5 x 285 m.

Izbrane nagrade | Selected Awards

1999 ECCS European Award for Steel Structures

2004, 2017 nagrada Inženirske zbornice Slovenije za izjemne inženirske dosežke | Award of the Slovenian Chamber of Engineers for exceptional engineering achievements

2004 Zlata plaketo Univerze v Mariboru | Golden plaque of the University of Maribor

2017 Award IACIE

2018 Puhova nagrada za izjemne dosežke | Puh award for exceptional achievements

2019 nagrada Jožefa Mraka za Inovativnost | J. Mrak award for inventiveness



Janez Pirš

- 1945** rojen v Ljubljani | Born in Ljubljana
1969 diplomira | BS degree, University of Ljubljana
1969 zaposlitev na Institutu Jožef Stefan (do upokojitve 2014) | Employed at IJS
1975 doktorira | PhD degree, University of Ljubljana
1975–1978 podoktorski študij | Post-doc, Liquid Crystal Institute at Kent State University, Kent OH, USA
1989 znanstveni svetnik | Scientific adviser, Jožef Stefan Institute
1997 ustanovitev IJS »spin-off« podjetja Balder d.o.o. | Founding of IJS spin-off company Balder Ltd
2004 ustanovitev R&D podjetja Redlab | Founding of R&D company Redlab
2012 Balder prodan | Balder sold to Kimberly Clark (K-C), USA
2012–2015 znanstveni svetnik Balder/K-C | Scientific advisor at Balder/K-C

Vso svojo profesionalno kariero na Institutu Jožef Stefan je posvetil raziskavam tekočih kristalov (TK), začenši z diplomo iz fizike s tega področja. V doktorskem delu je kot prvi na svetu dokazal anizotropnost gibanja molekul nematskih TK (nova NMR-metoda). Med podoktorskim študijem v ZDA je objavil enega od osnovnih člankov o relaksaciji TK-molekul na osnovi NMR-meritev. Na IJS je postavil visokotehnološki laboratorij, ki je v Sloveniji omogočil aplikativne raziskave TK: Tako je nastala tehnologijo izdelave TK-prikazalnikov (Iskra) in prvi prenosni računalniško vodenici osciloskop s TK-zaslonom ter njegova nadgradnja v prenosni OTDR-instrument na svetu (Iskra). Zlasti slednji sedaj predstavlja nepogrešljivo opremo serviserjev optičnih komunikacij. Predvsem je treba omeniti tehnološki preboj na področju optičnih TK preklopnikov – nov koncept (4 ZDA in EU patent). Na osnovi tega je osnoval visokotehnološko podjetje Balder za proizvodnjo avtomatskih zaščitnih čelad za varilce in podjetje Redlab, ki skupaj z Institutom Jožef Stefan zagotavlja R&D podporo Balderjevi proizvodnji.

automatic welding helmet



LCD welding light filter



clean-air welding system



Avtomatska zaščitna čelada za varilce, osnovana na uporabi optičnega LCD-preklopnika: Prepuščena svetloba se avtomatsko prilagaja tako, da varilec lahko nemoteno in varno dela. V zahtevnejših delovnih pogojih (plini, dim,) omogoča tudi uporabo sistema, ki dovaja »čist zrak« neposredno v čelado.

The automatic protective welding helmet is based on the use of a LCD light shutter. The transmitted light is automatically adjusted to ensure the comfort and safety of the welder. In the event of the presence of dust or fumes, it allows the use of a system that brings the “clean air” into the helmet.

Dr. Pirš's professional career at the Jožef Stefan Institute has been dedicated to the research of Liquid Crystals (LC), starting with the BSc thesis on the physics of LCs. In his PhD thesis, he was the first to demonstrate the anisotropic motion of the nematic LC molecules (new NMR method). He published one of the fundamental papers on the NMR relaxation of nematic LC (post-doctoral study in the USA). He set up a high-tech laboratory at JSI, which has paved the way for the applied research of LC, including the development of the technology for the LC displays (Iskra) and the world-first computer-controlled portable oscilloscope with the LCD screen and its upgrade to OTDR instrument (Iskra). In particular, the latter now represents an essential piece of equipment for optical communications servicing. Finally, one has to mention the break-thru in the field of the LCD light shutters (4 US/EU patents) – resulting in founding the high-tech company Balder for production of the automatic welding protection helmets and the company Redlab, which, together with Jozef Stefan Institute, provided the R&D basis for Balder's production.

Izbrana dela | Important Works

Automatic protective welding helmet, which is based on the use of the LCD light shutter.

Izbrane nagrade | Selected Awards

- 1981, 1984, 1986, 1990, 1993, 2001** Zoisovo priznanje za inovacije | Zois Distinction for Innovations
- 2016** Častna listina Instituta Jožef Stefan za prenos znanstvenih in tehnoloških dosežkov ustvarjenih na Institutu v družbeno in gospodarsko zaledje doma in v tujini



Tomaž Pisanski

1949 rojen v Ljubljani | Born in Ljubljana

1969–70 študira v Nancyu | Exchange student, University of Nancy, France

1972 diplomira iz tehnične matematike v Ljubljani | BSc, University of Ljubljana; magistrira na v Ljubljani | MSc in Mathematics; magistrira na Penn State University | MSc in Computer Science, Penn State University

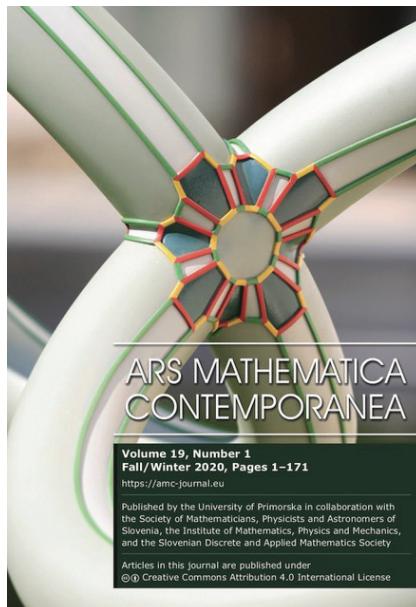
1981 doktorira iz matematike v Ljubljani | PhD in graph theory

1972– zaposlen na Univerzi v Ljubljani | Various positions at the University of Ljubljana

1991 na IMFM ustanovi oddelek za teoretično računalništvo | Head of the Department of Theoretical Computer Science at IMFM (1991-2011)

2004– delno zaposlen na Univerzi na Primorskem | Head of Department of Information Sciences

Dr. Pisanski ves čas deluje na meji med diskretno matematiko in teoretičnim računalništvom. Po vrnitvi iz ZDA 1979 vpelje v kurikulum študija uporabne matematike vrsto predmetov diskrette matematike in računalništva. Na dodiplomskem in poddiplomskem študiju matematike in računalništva predava predmete, kakršni so podatkovne strukture in algoritmi, baze podatkov, izbrana poglavja kombinatorične optimizacije, izbrana poglavja operacijskih raziskav, tudi umetno inteligenco. Že po diplomi raziskuje formalne jezike in diagnostiko napak v digitalnih vezjih. V magisteriju in doktoratu se usmeri v topološko teorijo grafov, kasneje pa to razširi na druge teme teorije grafov in diskretne matematike, npr. v študij konfiguracij in abstraktnih politopov ter uporabe grafov v kemiji in sintezni biologiji. Zanima ga zgodovina matematike, npr. Jurij Vega in Ivo Lah. Dejaven je v različnih matematičnih društih, npr. v Evropskem matematičnem društvu, kjer je bil med drugim član komisije za etiko.



Pisanski je eden od glavnih urednikov prve mednarodne matematične revije Ars Mathematica Contemporanea v Sloveniji, ki jo je z dr. Dragom Marušičem ustanovil leta 2008 in jo pokriva relevantne bibliografske baze, npr. WoS. Po podatkih SCOPUS je AMC ena od vodilnih raziskovalnih revij Vzhodne Evrope.

Along with Dr. Dragan Marušič, Pisanski is a Founding Editor of Ars Mathematica Contemporanea (AMC). The electronic version of the journal is free of charge both for authors and readers. AMC covers Algebra and Number Theory, Discrete Math, Geometry and Topology, and Theoretical Computer Science.

As an undergraduate exchange student in Nancy, Pisanski learned the basics of formal languages and graph theory. In his MSc and PhD, he upgraded his knowledge of graphs to topological graph theory and later to some other branches of discrete mathematics, such as configurations and abstract polytopes as well as applications of graphs to mathematical chemistry and synthetic biology. Between 1983–2003, he was a visiting professor (teaching at least for a semester) in Croatia, Italy, the USA, Canada, Austria, and New Zealand. He has been the recipient of several scholarships from Ljubljana, Belgrade, France, and the USA, including the Fulbright Travel Grant and IREX scholarship. He has conducted various research projects funded by ARRS, ESF, NSF, etc. He was the principal investigator for an ESF EUROCORE project GReGAS (2011–2014), and offered mathematical support for the international ERA SynBio project (2014–2017) with the project leader, dr. Roman Jerala. Dr. Pisanski is the Chair of the 8th European Congress of Mathematics that will take place in 2021 in Slovenia.

Izbrane dela | Important Works

T. Pisanski, B. Servatius (2013) Configurations from a Graph Theoretical Viewpoint, Springer.

M. Conder, I. Hubard, T. Pisanski (2008) Constructions for chiral polytopes. *J. Lond. Math. Soc.* 2(77): 115–129.

A. Graovac, T. Pisanski (1991) On the Wiener index of a graph. *J. Math. Chem.* 8, 53–62.

Izbrane nagrade | Selected Awards

1967 Mednarodna matematična olimpijada, bronasta medalja | IMO, Bronze medal

1976 nagrada Kidričevega sklada za raziskave diagnostike napak v digitalnih vezjih | Kidrič Fund Distinction

1985 nagrada Kidričevega sklada za dosežke v teoriji grafov | Kidrič Fund Distinction

2005 red za zasluge RS ob 250-letnici rojstva Jurija Vege | Order of Merit of the Republic of Slovenia

2012 član Academia Europaea | Member of the Academia Europaea

2015 Zoisova nagrada | Zois Award



Mark Pleško

- 1987** doktorira iz fizike | PhD in Physics

1996 MBA | MBA, IEDC Bled

1994–2008 vodja sinhrotronskega sevalnega laboratorija | Head of Synchrotron Radiation Laboratory, IJS

2001 ustanovitev podjetja Cosylab | Founder of Cosylab

2007–2013 predsednik uprave | Chairman of the Board, Kyma srl, Italy

2010–2013 predsednik nadzornega sveta | Chairmain of Supervisory Board, Fotona

2012 član odbora | Member of - EU Japan Business Round Table

2014 član upravnega odbora Zveze za tehnično kulturo Slovenije | Member of the management board of the Society for the Promotion of Technical Culture

2015 predsednik upravnega odbora IJS | President, Management Board of the J. Stefan Institute

2018 predsednik inženirske akademije Slovenije | President of the Engineering Academy of Slovenia

Dr. Mark Pleško se je rodil leta 1961 in postal doktor fizike jedra in osnovnih delcev pri 25 letih. Leta 1996 je zaključil študij MBA na IEDC Bled z odliko. Je ustanovitelj in direktor družbe Cosylab, ki je zraslo v mednarodno podjetje z več kot 250 zaposlenimi in je vodilno na svetu v svoji niši krmilnih sistemov za jedrske pospeševalnike ter za protonsko terapijo raka. Podjetje ima podružnice na Japonskem, v ZDA, Kitajski, Švedski in Švici. Med stotimi strankami na petih celinah sodijo največji svetovni nacionalni laboratoriji. Sodelujejo v mednarodnih projektih, kot so CERN, mednarodni fuzijski projekt ITER, SLAC na Stanfordu, Univerzitetna klinika Harvarda, institut PSI od švicarskega ETH in drugi. Bil je predsednik uprave italijanske družbe KYMA srl in predsednik nadzornega sveta slovenskih podjetij Fotona in Evolve. Trenutno je direktor družb Cosylab in Tehnodrom, član upravnega odbora švicarske družbe AAT, predsednik upravnega odbora Inštituta Jožef Stefan, član upravnega odbora Društva za promocijo in tehnično kulturo (ZOTKS), podpredsednik Sveta za Znanost in Tehnologijo (SZT) Republike Slovenije, član Sveta Republike Slovenije za visoko šolstvo ter član Programskega svetovnega fakultete za računalništvo in informatiko ter Fakultete za matematiko in fiziko Univerze v Ljubljani.



Globalno umeščenost in pomen podjetja Cosylab potrjuje aktivna vloga dr. Marka Pleško v domačih in tujih inštitucijah, svetih, društvih in družbah kot tudi v odboru EU-Japan Business Round Table, skupine 49 predsednikov in direktorjev največjih in najvplivnejših podjetij iz EU in Japonske.

The global positioning and reach of Cosylab is emphasized by the role of dr. Mark Pleško in institutions, councils, boards and companies to help develop trade and investment between EU and Japan, and to encourage industrial cooperation in innovation, climate change, or industrial standards.

Dr. Mark Pleško, MBA, was born in 1961 and is a world-renowned expert on nuclear accelerators and particle cancer therapy. He is the founder and managing director of Cosylab, a spin-off, which he has grown to 250+ employees, present on three continents. Dr. Pleško is President of the Engineering Academy of Slovenia, President of the Management Board of the J. Stefan Institute, Vice-president of the Science and Technology Council of the Government of Slovenia, member of Programme Councils at Faculties of Mathematics and Physics and Computer Science at the University of Ljubljana, and member (and Work Package Leader) of the EU-Japan Business Round Table. He is an angel investor in 15+ startups. He received the Award of the European Physics Society 2001, was nominated for Slovenian Entrepreneur of 2014, received the Slovenian Chamber of Commerce Award for exceptional business and entrepreneurial achievements 2018, and received the Alumni of the Year 2018 Award of IEDC. He has a BSc, MSc, and PhD in elementary particle physics from the University of Ljubljana in 1983, 1985, and 1987. He received an MBA with honors at IEDC Bled in 1996.

Izbrana dela | Important Works

Žarilna svečka z integriranim krmilnikom, Cosylab, patent 21857.

Postopek določanja in regulacije temperature žarilne svečke, Cosylab, patent 21858.

Sistem za merjenje tlaka na jadru, oblike jadra in metoda za določanje potisne sile, Cosylab, patent 23913.

D. Einfeld, M. Plesko, J. Schaper (2014) First multi-bend achromat lattice consideration. Journal of Synchrotron Radiation 21(Pt 5):856-861.

H. Albrecht et al. (ARGUS Collaboration) (1987) Observation of B0-B0 mixing. Physics Letters B. Elsevier BV. 192 (1-2):245-252.

Izbrane nagrade | Selected Awards

2001 nagrada evropskega fizikalnega društva (EPS) za kontrolne sisteme v eksperimentalni fiziki | European Physical Society Award

2014 nominacija za Podjetnik leta | nomination for the Slovenian Entrepreneur of the Year

2018 nagrada za izjemne gospodarske in podjetniške dosežke za leto 2017 | Award of the Slovenian Chamber of Commerce for exceptional business and entrepreneurial achievements

2018 nagrada za dosežke kot diplomanta | Alumni Achievement Award - IEDC



Boštjan Podobnik

1967 rojen v Ljubljani | Born in Ljubljana, Slovenia

1992 diplomira iz foto-termične difleksijske spektroskopije | Degree, majoring on photothermal deflection spectroscopy, Faculty of Mathematics and Physics University of Ljubljana

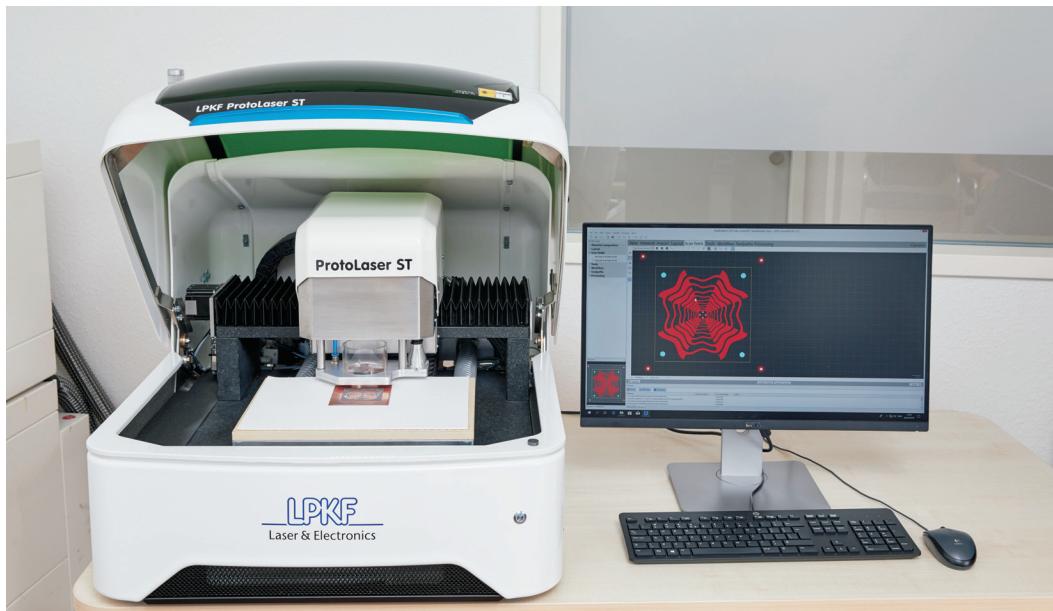
1998 doktorira iz ultrahitre spektroskopije visokotemperturnih superprevodnikov | PhD on ultrafast spectroscopy of high-temperature superconductors, University of Ljubljana

1998 vodja laserskega oddelka v LPKF d.o.o. | Head of laser department in LPKF d.o.o.

2010 direktor družbe LPKF d.o.o. | Managing director LPKF d.o.o.

2015 vodja poslovne enote Development quipment v koncernu LPKF AG | Head of business unit Development quipment in the LPKF AG group.

Tema doktorskega dela dr. Podobnika so bili visokotemperturni superprevodniki, a večino časa je namenil razvoju femtosekundnega Ti:Safirjevega laserja in postaviti ultrahitrega spektroskopskega sistema. Takrat se je navdušil nad laserji in se po doktoratu pridružil garažnemu oddelku za razvoj in proizvodnjo laserjev v podjetju LPKF Laser & Electronics d.o.o. Sodeloval je pri uveljavljenosti laserskih tehnologij v postopkih izdelovanja prototipov in maloserijske proizvodnje elektronskih vezij. Podjetje LPKF je danes največji svetovni proizvajalec opreme na tem področju, razvilo pa se je tudi v glavni laboratorij mednarodnega koncerna LPKF za razvoj in proizvodnjo laserjev za različne tipe industrijskih mikroobdelovalnih laserskih sistemov. Podobnik je v podjetju sčasoma prevzema nove naloge, od leta 2010 pa ga tudi vodi. Inovativnost, inženirska odličnost, ekologija in usposobljeni kadri pa so ves ta čas temelji njegove poslovne filozofije.



Neposredno lasersko strukturiranje elektronskih vezij prinaša številne prednosti z vidika fleksibilnost, hitrosti, cene, nerazkrivanja podatkov in varovanja okolja. ProtoLaserji podjetja LPKF so zato našli pot v stotine razvojno-raziskovalnih laboratorijs po vsem svetu.

Direct laser structuring of electronic circuits brings many advantages in terms of flexibility, speed, cost, design non-disclosure, and environmental protection. LPKF's ProtoLasers have therefore found their way into hundreds of R&D laboratories around the globe.

Today Dr. Podobnik is the head of the business unit Development equipment in the international concern LPKF Laser & Electronics AG and the managing director of the LPKF d.o.o. in Slovenia. He became fascinated with lasers during his doctoral work at the Jožef Stefan Institute in Ljubljana. After joining LPKF's garage laser development team in 1998, he led the introduction of laser technologies in the processes of prototyping and small-scale production of electronic circuits. Today LPKF is the world's largest manufacturer of equipment in this field, expanding its markets into the areas of laser micromachining in photovoltaics, microfluidics, nanotechnologies, and others. Innovation, engineering excellence, ecology, qualified staff, and strong cooperation with local and international academic and industrial partners have been the foundations of Dr. Podobnik's business philosophy all this time.

Izbrana dela | Important Works

B. Berčič, U. Pirnat, ..., B. Podobnik (2006) Transport properties of Mo₆S₃I₆ nanowire networks. Applied Physics Letters 88:173103.

B. Podobnik et al. (2013) Verfahren zur berührungslosen Abstandsmessung: DE102012106613, DE Patent und Markenamt.

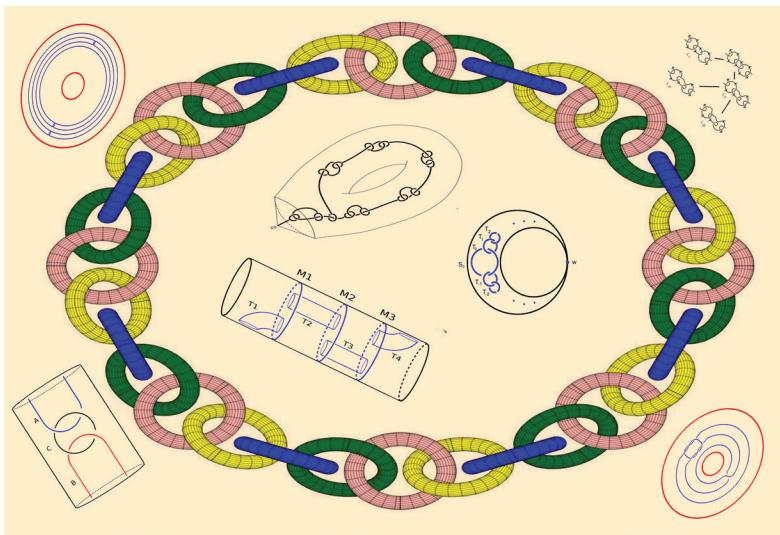
D. Kovačič, J. Van Aalst, B. Podobnik (2016) Method for partially stripping a defined area of a conductive layer: US9414499 (B2), US Patent and Trademark Office.



Dušan Repovš

- 1954** rojen v Ljubljani | Born in Ljubljana, Slovenia
1977 diplomira | BSc Mathematics, University of Ljubljana
1983 doktorira | PhD Mathematics, Florida State University
1993 redni profesor | Full Professor, University of Ljubljana
1986–1987 gostujoči profesor | Visiting Professor, University of Texas, Austin, USA
1988–1997 gostujoči znanstvenik | Visiting Scientist, Steklov Mathematical Institute, Moscow, Russia
1992 gostujoči profesor | Visiting Professor, University of Nantes, France
1998, 2001 gostujoči znanstvenik | JSPS Senior Scientist, University of Tokyo, Japan
1992–2012 gostujoči profesor | Visiting Professor, International Centre for Theoretical Physics, Trieste, Italy

Profesor Repovš je vodilni strokovnjak na področju nelinearne analize in topologije v Sloveniji ter eden najbolj znanih slovenskih matematikov. Objavil je že 4 znanstvene monografije pri vodilnih tujih založbah, več kot 450 raziskovalnih člankov ter univerzitetni učbenik. Imel je že več kot 400 vabljenih predavanj na mednarodnih konferencah in kolokvijih na univerzah v številnih državah širom po svetu. Raziskuje na področju topoloških metod v nelinearni analizi, uporabe funkcionalne analize, topologije in algebре. Znan je postal že v 80-ih letih, zlasti po rešitvi klasičnega problema o prepoznavanju topoloških 3-mnogoterosti, dokazu kriterija o celularnosti v dimenziji 4 in dokazu Lipschitzovega primera klasične Hilbert-Smithove domneve. Najaktivnejše raziskuje parcialne diferencialne enačbe in njihovo uporabo. Na Inštitutu za matematiko, fiziko in mehaniko v Ljubljani že od leta 1980 dalje vodi nacionalno raziskovalno skupino za nelinearno analizo, topologijo in geometrijo. Je član uredniških odborov pomembnih tujih znanstvenih revij.



Agencija za raziskovalno dejavnost Republike Slovenije je nacionalno raziskovalno skupino za nelinearno analizo, topologijo in geometrijo, ki jo na Institutu za matematiko, fiziko in mehaniko v Ljubljani od leta 1980 dalje vodi profesor Repovš, izbrala med najboljše programske skupine v Sloveniji. Na sliki je njegova konstrukcija dijih Cantorjevih množic; na tem raziskovalnem področju je njegova skupina vodilna na svetu.

The Slovenian Research Agency has selected the national non-linear analysis, topology, and geometry research group, which Professor Repovš has been leading since 1980 at the Institute of Mathematics, Physics, and Mechanics in Ljubljana, among the best program groups in Slovenia. The picture shows his construction of wild Cantor sets - in this research area, his group leads the world.

Professor Repovš is the leading expert on non-linear analysis and topology in Slovenia and is one of the best known Slovenian mathematicians. He has published four monographs with leading scientific publishers, over 450 research papers, and a university textbook. He has given over 400 invited talks at various international conferences and universities around the world. His research interests are in topological methods in non-linear analysis, applications of functional analysis, set-valued analysis, topology, and algebra. He became known already in the 1980s, notably for the solution of the classical recognition problem for 3-manifolds, for the proof of the 4-dimensional Cellularity Criterion, and the proof of the Lipschitz case of the classical Hilbert–Smith conjecture. He is most actively investigating partial differential equations and their applications. Since 1980 he has been leading the national non-linear analysis, topology, and geometry research group at the Institute of Mathematics, Physics, and Mechanics in Ljubljana. He serves on editorial boards of several important journals.

Izbrana dela | Important Works

N. Papageorgiou, V. Radulescu, D. Repovš (2019) Nonlinear Analysis - Theory and Methods, Springer Monographs in Mathematics.

A. Cavicchioli, F. Hegenbarth, D. Repovš (2016) Higher-Dimensional Generalized Manifolds: Surgery and Constructions, European Mathematical Society.

V. Radulescu, D. Repovš (2015) Partial Differential Equations with Variable Exponents: Variational Methods and Qualitative Analysis, Chapman & Hall/CRC.

Izbrane nagrade | Selected Awards

- 1978 Fulbrightova štipendija | Fulbright Fellowship
- 1995 priznanje Steklovskega matematičnega inštituta | Steklov Mathematical Institute Citation
- 1995 ambasador Republike Slovenije v znanosti | Ambassador of the Republic of Slovenia for Science
- 1997 Zoisovo priznanje | Zois Prize
- 2014 častni doktorat | Doctor Honoris Causa
- 2017 izvolitev v Evropsko akademijo znanosti in umetnosti | election to European Academy of Arts and Sciences



Stanislav Rožman

1948 rojen v Brežicah | Born in Brežice, Slovenia

1972 diplomira iz avtomatizacije elektroenergetskih naprav | Degree, automation of electro-energetic devices

1972 inženir razvoja-projektant | Design engineer in ISKRA

1975 vodja izmene | Shift supervisor, Nuclear Power Plant Krško

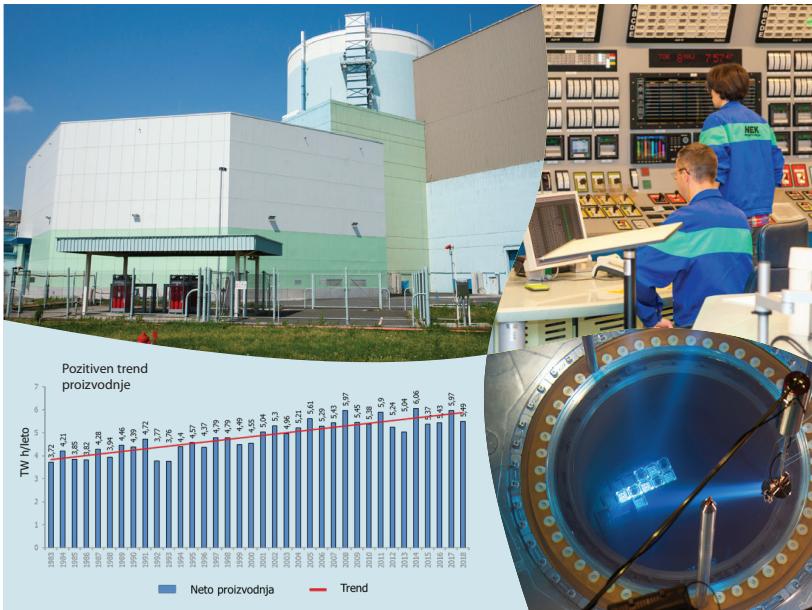
1988 glavni direktor | General director, Nuclear Power Plant Krško

2003 predsednik uprave | President of the Management Board, Nuclear Power Plant Krško

2005 predsednik sveta guvernerjev regionalnega centra WANO v Parzu | WANO Paris Centre Governing Board Chairman

2008 član Strateškega sveta za energetiko Vlade R Slovenije | Member of the Strategic Energy Council of the Slovene Government

Področje njegovega strokovnega dela so elektroenergetika in jedrska energija. Začetki so na področju razvoja in avtomatizacije hidroelektrarn v Sloveniji. Glavnino profesionalne kariere je posvetil jedrski energetiki v Sloveniji in v svetu. V problematiko varnosti obratovanja jedrskih elektrarn v svetu je aktivno vključen prek svetovne asociacije operaterjev WANO (World Association of Nuclear Operators) in Mednarodne agencije za atomsko energijo. Njegovi glavni delovni dosežki so zagonska testiranja, razvoj obratovalne organizacije NEK, vzpostavljanje delovnih procesov NEK in obratovalnih postopkov ter zagotavljanje varnega in stabilnega obratovanja NEK. NEK je v dvajsetih letih njegovega vodenja razvila varnostno kulturo in kadrovski potencial, ki danes dosegajo izjemne rezultate tudi v svetovnem merilu. Po standardnih kazalnikih so uvrščeni v prvo četrtnino najuspešnejših elektrarn v svetu.



Prizadevanja za odličnost v jedrski industriji so stalnica, skupaj moramo izpolnjevati jedrsko varnost in zanesljivost ne glede na ekonomske in tržne izzive. Jедrska varnost je najvišja prioriteta zaradi posebnih karakteristik in izjemnih tveganj tehnologije.

The pursuit of excellence in the nuclear industry is continuous, and collectively we must advance nuclear safety and reliability despite economic and market challenges. Nuclear safety is the overriding priority because of the special characteristics and unique hazards of the technology.

My professional work is on electricity production and nuclear energy. I started my career in the area of the development and automation of hydroelectric power plants in Slovenia. I have devoted the major part of my professional career to the commercial use of nuclear energy in Slovenia and worldwide. I am actively involved in the safety of nuclear power plants worldwide through the World Association of Nuclear Operators (WANO) and the International Atomic Energy Agency (IAEA). My major achievements are the plant's start-up tests, the establishment of the Krško nuclear power plant operating organization, the development of the plant work processes and operating procedures as well as the safe and stable operation of the Krško nuclear power plant. In my 20-year career in management, the Krško nuclear power plant has developed a strong safety culture and a stable operating team that has achieved exceptional performance also worldwide. The standard performance index shows that the Krško plant ranks among the first quartile of the most successful power plants in the world.

Izbrane dela | Important Works

1985–2000 Expert mission reports on international safety assessment reviews of nuclear power plants in Brazil, France, Finland, Rusia (IAEA, WANO).

1988 IAEA seminar in China on Operating Standards of Nuclear Power Plants.

2012–2015 Safety Committee Meetings Reports (Vattenfall, Sweden).

Izbrane nagrade | Selected Awards

2006 plaketa Milana Vidmarja za dosežke v elektrogospodarstvu | Milan Vidmar Award Scientific Achievements in electricity generation industry

2011 nagrada GZS za gospodarske in podjetniške dosežke | Chamber of Commerce and Industry in Slovenia Award for extraordinary achievements in commerce and entrepreneurship

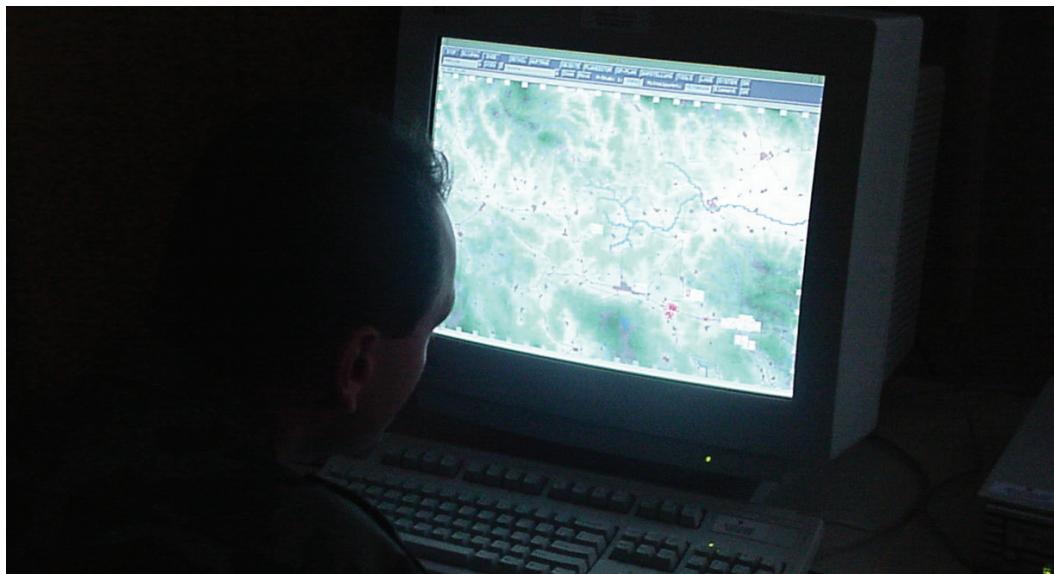
2011 nagrada WANO za nuklearno odličnost | WANO Nuclear Excellence Award



Tomaž Savšek

1964 rojen v Novem Mestu | born in
Novo Mesto
1989 diplomira | BSc
1992 magistrira | MSc
1998 doktorira | PhD
2011 docent | Assistant Professor

Dr. Tomaž Savšek je diplomiran univerzitetni inženir elektrotehnik (1989) ter magister (1992) in doktor (1998) elektrotehničnih znanosti, vse Univerza v Ljubljani, Fakulteta za elektrotehniko. Zaposlen je bil na Ministrstvu za obrambo, kjer je deloval na področju modeliranja, simulacij in operacijskih raziskav ter obrambnega planiranja. Vodil je tudi ciljni raziskovalni in tehnološki program MIR. Od leta 2006 dela v TPV, kjer je pomočnik glavnega direktorja, zadolžen za področje strateških in raziskovalnih projektov. Istocasno je predavatelj in nosilec predmetov na Fakulteti za industrijski inženiring Novo mesto, kjer je tudi član senata in upravnega odbora Fakultete. Področja njegovega raziskovanja so: računalniška obdelava signalov, teorija mehkih (fuzzy) množic, računalniški sistemi za podporo odločjanju, simulacijski sistemi bojevanja, operacijske raziskave, strateško upravljanje virov ter razvojnорaziskovalni projekti v avtomobilski industriji.



Posnetek z računalniško podprtne vaje, kjer se je uporabljal simulacijski sistem bojevanja HORUS. Model je bil razvit v inštitutu IABG za potrebe Nemške vojske ter nadgrajen v sodelovanju s Slovensko vojsko. Pri tem so bili uporabljeni tudi fuzzy algoritmji, ki jih je razvil dr. Tomaž Savšek. Sistem je predstavljal zametek in jedro Centra za operacijske raziskave in simulacije, ki je deloval v okviru Ministrstva za obrambo, Ljubljana, 1999.

Footage from a computer-assisted exercise with the HORUS combat simulation system. The simulation model was developed at the IABG Institute for the needs of the German Army and upgraded in cooperation with the Slovenian Army. Fuzzy algorithms in the simulator were developed by dr. Tomaž Savšek. The system represented the beginning and core of the Centre for Operational Research and Simulations and was deployed by the Ministry of Defense in 1999.

Tomaž Savšek has a BSc (1989), an MSc (1992), and a PhD (1998) in electrotechnical science from the Faculty of Electrical and Computer Engineering, University of Ljubljana. He was a research engineer at the Faculty of Electrical and Computer Engineering in Ljubljana from 1989 to 1992. Since 1992, he has led a project team for the development of a combat simulation system and simulation centre for the Slovenian Armed Forces. He also headed a Centre for Operational Research and Simulations. He also has a Certificate of Senior International Defense Management Course from the Naval Postgraduate School, Monterey, California, USA. Since 2006, he has been Assistant General Manager in TPV, responsible for the public-private partnership and strategic research and development projects. He is also a professor at the Faculty of Industrial engineering in Novo Mesto, where he is a lecturer on the subject "Automotive industry," primarily focused on green car initiatives and e-mobility.

Izbrane dela | Important Works

Modern military simulation systems: operational research, war games and combat simulations, 2000.

Fuzzy trees in decision support systems. European journal of operational research, 2006.

Pattern recognition by comparing the fuzzy relational trees. 2015.

Izbrane nagrade | Selected Awards

- 1990** Prešernova nagrada za študente | Prešeren Award for Students
- 2000** Srebrna medalja Slovenske vojske | Silver medal of the Slovenian Armed Forces
- 2000** priznanje za sodelovanje | Certificate of Appreciation, Northrup Grumman, USA
- 2006** priznanje za sodelovanje | Certificate of Appreciation, NATO Research and Technology Organisation
- 2015** Zlato priznanje GZS za inovacije | CCIS Gold Award for Innovation



Konrad Steblovnik

1975 diplomira s področja giratorjev | Degree, majoring on gyrators, University of Ljubljana

1985–1989 vodi razvoj terminalne in druge računalniške opreme v Gorenju | Head of R&D for computer terminals and other peripherals in Gorenje

1991–2000 vodi razvoj barvnih televizorjev v Gorenju in Elektroniki Velenje | Head of R&D for color TVs in Gorenje and Elektronika Velenje

2007 doktorira s področja agentno zasnovanega koncepta pametnih hišnih naprav | PhD on agent-based concept of household appliances, University of Maribor

2000–2012 vodi razvoj elektronskih sklopov za belo tehniko in hišne avtomatizacije v Gorenju | Head of R&D for electronics in white goods and home automation in Gorenje

Dr. Konrad Steblovnik je večino svojega profesionalnega življenja delal v različnih razvojnорaziskovalnih službah Gorenja Velenje. Vodil je razvojnорaziskovalne oddelke, ki so razvijali elektrotehniko za izdelke s področja računalništva, barvnih televizorjev in elektronike za belo tehniko. V različnih obdobjih so razvili veliko število izdelkov, ki jih je Gorenje z lastnim znanjem proizvajalo za nekdanji jugoslovanski, slovenski, evropski, ameriški in svetovni trg: računalniške terminale družine PAKA, združljive z računalniki DEC, IBM, Burroughs, Honeywell, CDC; barvne televizorje; belo tehniko (kuhalno, pralno, in hladilno); sistem pametne hiše Gorenje. Tudi sam je prispeval veliko število inovacij in patentov, ki so bili implementirani v teh izdelkih. Neko obdobje je bil tudi predavatelj na Višji elektro šoli v Velenju in Fakulteti za tehnologijo polimerov v Slovenj Gradcu.



Dr. Steblövnik je raziskoval sisteme pametnih hiš s pametnimi napravami in v okviru tega razvil model večagentne dinamične strukture razumnega hišnega pomočnika. Na sliki je grafični uporabniški vmesnik pečice Gorenje.

Dr. Steblövnik studied smart home systems with intelligent devices, and within this developed a model of a multi-agent dynamic structure of a smart house helper. Shown above is a graphical user interface of the Gorenje oven.

Dr. Konrad Steblövnik has worked most of his professional life in various research and development departments of Gorenje Velenje. He led the R&D departments and sectors that developed different electronics for products in the field of computer science, colour TVs, and electronics for white goods. In different periods, these development departments developed with their expertise a large number of products manufactured by Gorenje for the former Yugoslav, Slovenian, European, American, and world markets, such as the PAKA family computer terminals compatible with DEC, IBM, Burroughs, Honeywell, and CDC computers; colour TVs; household appliances (hot, wet and cold) as well as the Gorenje smart house system. He contributed many innovations and patents that have been implemented in these products. He was also for some time a lecturer at the Electrical High School in Velenje and at the Faculty of Polymer Technology in Slovenj Gradec.

Izbrana dela | Important Works

K. Steblövnik, S. Grilli (2007) Software configuration management for ambient intelligence: The COMANCHE approach. In Proc. 21st Internat. Conf. on Adv. Netw. and Appl. Worksh. Symposia, Niagara Falls, pp. 362-367.

K. Steblövnik, D Zazula (2011) A novel agent-based concept of household appliances. Journal of Intell. Manufact. 22(1):73-88.

Izbrane nagrade | Selected Awards

1985 nagrada sklada B. Kidriča za izume in izboljšave: VIDEO KRMILNI MODUL KLT-T, PAKA 3000 | B. Kidrič Foundation Award for inventions and improvements: VIDEO CONTROL MODUL KLT-T, PAKA 3000

1987 nagrada sklada B. Kidriča za izume in izboljšave: VIDEO TERMINAL PAKA 5000 | B. Kidrič Foundation Award for inventions and improvements: VIDEO TERMINAL PAKA 5000

2002 inovator Gorenja | Gorenje company innovator



Stanko Strmčnik

1949 rojen v Vitanju | Born in Vitanje, Slovenia

1973 zaposlitev na Institutu »Jožef Stefan« (IJS) | Joined Jožef Stefan Institute (JSI)

1979 doktorira iz identifikacije sistemov | PhD on system identification, University of Ljubljana

1986 ustanovi nov odsek na IJS | Founded a new department at JSI

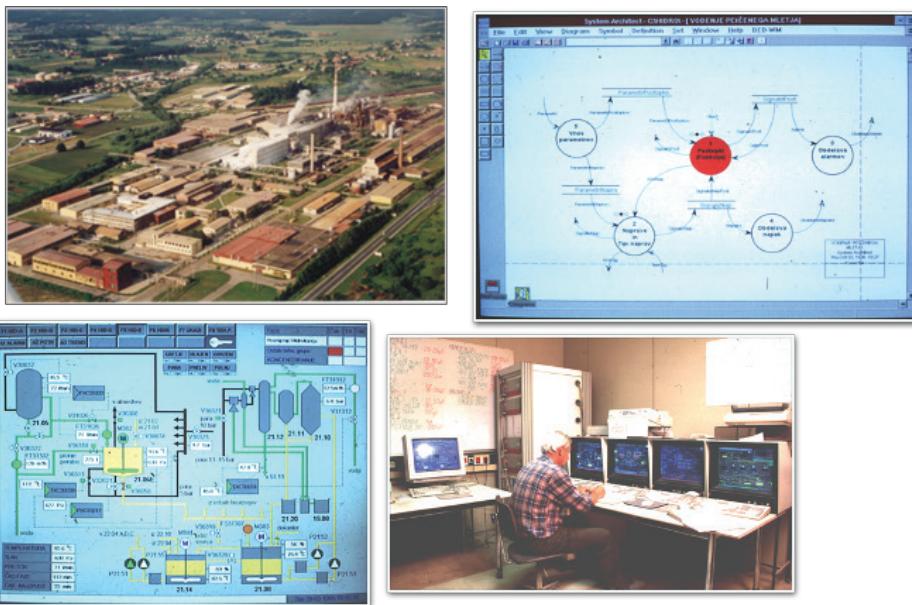
1992 predsednik Sveta za tehniko I | President of the Committee for Engineering Sciences I, Republic of Slovenia

2001 znanstveni svetnik | Scientific advisor, JSI

2003 član Sveta za znanost in tehnologijo | Member of the Council for Science and Technology of Republic of Slovenia

2009 redni profesor | Full professor, University of Nova Gorica

Dr. Strmčnik izhaja iz šole avtomatske regulacije in vodenja sistemov, ki jo je v Sloveniji utemeljil prof. dr. France Bremšak. Njegovo raziskovalno delo je bilo sprva usmerjeno predvsem v matematično modeliranje in identifikacijo sistemov, kasneje pa v različne oblike klasičnih in modernih algoritmov vodenja ter netechniške vidlike avtomatizacije. Kot ključen izziv si je postavil povečati učinkovitost prenosa teoretičnega znanja v prakso, zato je svoje raziskovalno delo in raziskovalno delo sodelavcev, s katerimi je skupaj ustanovil Odsek za računalniško avtomatizacijo in regulacije (kasneje preimenovan v Odsek za sisteme in vodenje), usmeril v področja, ki bi čim več prispevala k realizaciji tega cilja. Največje uspehe je skupaj s sodelavci dosegel na področjih raziskav in razvoja vodenja procesov zgorevanja, orodij za računalniško podprtlo načrtovanje vodenja sistemov, gradnikov za implementacijo sistemov vodenja, vodenja in optimiziranja delovanja bioloških čistilnih naprav ter celostnega pristopa k načrtovanju in realizaciji sistemov za vodenje zahtevnejših industrijskih procesov.



Skupaj s sodelavci je uvedel celostni pristop k načrtovanju in realizaciji sistemov za vodenje industrijskih procesov, ki poudarja začetne faze življenskega cikla in upošteva netechniške vidike. Pристоп je pomembno vplival na način uvajanja avtomatizacije v Sloveniji.

Together with colleagues, he introduced a holistic approach to the design and implementation of industrial process control systems, highlighting the initial stages of their life cycle and non-technical aspects. The approach significantly influenced the introduction of automation in Slovenia.

Dr. Stanko Strmčnik has worked at Jožef Stefan Institute, the leading Slovenian research institute for 45 years. He founded the Department of Computer Automation and Control (later renamed as the Department of Systems and Control) and headed it for 25 years. His research interests include mathematical modeling, identification, optimal control, predictive control, PID tuning, process control, non-technical aspects of automation, and technology transfer. He was, together with colleagues, one of the pioneers in advanced computer control in Slovenia. He initiated and led the development of various tools and building blocks for control system implementation and was deeply involved in large industrial engineering projects, including combustion control in boilers and industrial furnaces, computer control of pulp cooking, computer control of titanium dioxide production. He has also held important positions within the national research and innovation system and substantially contributed to the establishment of various organizational forms for a better exchange of knowledge and transfer of technology.

Izbrana dela | Important Works

Strmčnik S, Juričić D, (Eds.) (2013) Case studies in control: putting theory to work. Springer, XVI, 411 pages.

Stare et al. (2007) Comparison of control strategies for nitrogen removal in an activated sludge process in terms of operating costs: a simulation study. Water research, 41(9), 2004-2014.

Gerkšič et al. (2006) Advanced control algorithms embedded in a PLC. Control engineering practice, 14(8), 935-948.

Izbrane nagrade | Selected Awards

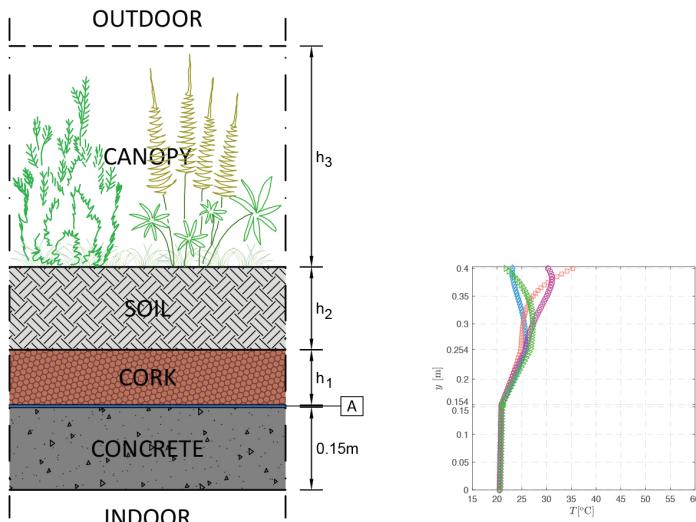
- 2016 zaslужni profesor | professor emeritus
- 1997 nagrada Republike Slovenije za tehnološke dosežke | Award of Republic Slovenia for research and technology achievements
- 1988 nagrada Sklada Borisa Kidriča (SBK) za raziskovalne dosežke | SBK national award for research achievements
- 1985 nagrada SBK za izume in tehnične izboljšave | SBK national award for inventions and technical improvements
- 1973 Bedjaničeva nagrada za diplomo | Bedjanic Award for diploma thesis



Leopold Škerget

- 1984** doktorira iz računalniške dinamike tekočin | PhD on computational fluid dynamics, University of Maribor (UM)
- 1993** redni profesor | Full professor, UM
- 1995** predstojnik Katedre in Instituta za energetsko, procesno in okoljsko inženirstvo | Head of Chair and Institute for power, process and environmental engineering, UM
- 1998** znanstveni svetnik | Scientific fellow, Turboinstitut, Ljubljana
- 2006** gostujoči profesor | Visiting professor, University of Evora, Portugal
- 2013–2019** gostujoči profesor | Visiting professor, University of Coimbra, Portugal
- 2016** profesor | Adjunct professor at the Wessex Institute of Technology, Southampton, UK
- 2017** zaslužni profesor | Professor emeritus, UM

Profesor Leopold Škerget se je ukvarjal z energetskim, procesnim in okoljskim inženirstvom, prenosnimi pojavi topote, snovi in gibalne količine v trdnih snoveh in tekočinah. Njegove raziskave so se osredotočile na razvoj in uporabo modelov numeričnih aproksimacijskih rešitev – računske dinamike tekočin, npr. metode končnih elementov FEM in metode robnih elementov BEM, za numerično simulacijo in modeliranje prenosnih pojavov laminarnega in turbulentnega toka tekočin v strojih, napravah in okoljskih sistemih, značilnih za energetsko, procesno in okoljsko inženirstvo. Bil je prodekan za raziskovalno dejavnost na Tehniški fakulteti v Mariboru, kasneje na Fakulteti za strojništvo Univerze v Mariboru. Bil je vodja Katedre in Inštituta za energetsko, procesno in okoljsko inženirstvo. V sodelovanju z Univerzo v Coimbru, kot gostujoči profesor, je delal na razvoju in uporabi zanesljivih numeričnih orodij za obravnavo nelinearnih vezanih tokov topote, vlage in zraka skozi porozne večslojne gradbene strukture in zelene strehe.



(A) - Waterproofing Layer, 0.004mm (moisture barrier)

Temperaturna porazdelitev po času skozi petplastno porozno zeleno strešno konstrukcijo: zelenje – zemlja – eksplandirana pluta – pregrada – beton.

Temperature variation over time through five-layer porous green roof structure: canopy – soil – expanded cork – moisture barrier – concrete.

Izbrane dela | Important Works

Lupše J., Škerget, L., Ravnik J. (2014) Velocity-vorticity (RANS) turbulence modeling by boundary element method. Eng. Anal. Bound. Elem. 39:44-52.

Škerget L., Tadeu A. (2014) BEM numerical simulation of coupled heat and moisture flow through a porous solid. Eng. Anal. Bound. Elem. 40:154-161.

Kocutari P., Škerget L., Ravnik J. (2015) Hybrid LES/URANS simulation of turbulent... Eng. Anal. Bound. Elem. 61:16-26.

Izbrane nagrade | Selected Awards

1997 srebrna plaketa | Silver plaque, University of Maribor (UM)

1986 štipendija | A. von Humboldt scholarship, Friedrich-Alexander University Erlangen-Nürnberg

2001 Zoisova nagrada za vrhunske znanstvene dosežke na področju procesnega in okoljskega inženirstva | Zois award for highest scientific research contributions in the area of process and environmental engineering

2004 zlata plaketa | golden placard, UM

2008 Eminent scientist medal of Wessex Institute, Southampton

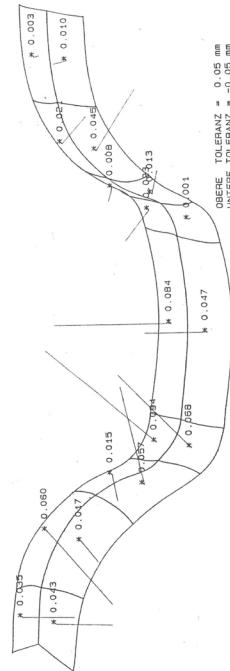
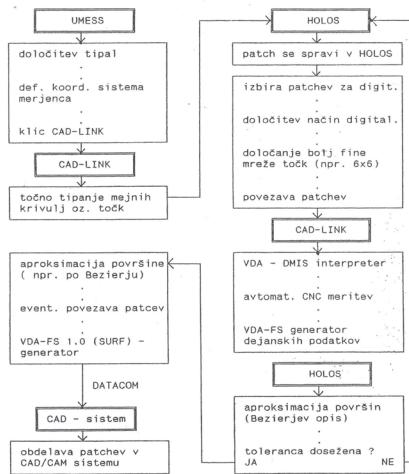
Professor Leopold Škerget has worked on power, process, and environmental engineering and the transport phenomena of heat, mass, and momentum in solids and fluids. His research has focused on developing and applying computational fluid dynamics numerical solution models (e.g., the finite element method and boundary element methods) for the numerical simulation and modelling of the transport phenomena of laminar and turbulent fluid flow in machines, apparatus, and environmental systems, typical for mechanical, process and environmental engineering. He was a Full Professor and Head of the Institute for Power, Process and Environmental Engineering. He has collaborated, as a visiting professor, with the University of Coimbra in the development and use of reliable numerical models to simulate non-linear coupled heat, moisture and air flow through porous multilayer building structures and green roofs.



Adolf Šostar

- 1934** rojen v Ljubljani | Born in Ljubljana
- 1960** diplomira s področja konstruiranja specialnih vozil | Degree, majoring on construction of special vehicles, University of Ljubljana
- 1975** doktorira s področja meritev na obdelovalnih strojih | PhD on error measuring of production devices, Technical University Graz
- 1977** izredni profesor | Associate professor, University Maribor
- 1981** redni profesor | Full professor, University Maribor
- 1992** gostujoči profesor | Visiting professor, TU Graz
- 1991** član meroсловnega sveta | Member of the Meteorological council RS
- 2001** zasluzni profesor | Emeritus professor, University Maribor

Uspešno inženirsko kariero je dr. Šostar začel v TAM-u, kjer je vodil eksperimentalno skupino za razvoj, raziskave in uvajanje novih tehnologij, orodij in strojev. Novi odrezovalni materiali in orodja, povečana avtomatizacija, integrirana merilna in kontrolna tehnika ter posodobitev metod zagotavljanja kakovosti, so bili rezultat njegovega dela. Na Fakulteti za strojništvo je vodil laboratorij za tehnološke meritve. Vodil in usmerjal je integracijo koordinatne merilne tehnike v industrijo. Z raziskavo in izdelavo programske opreme za meritve poljubno oblikovanih prostorskih ploskev je vplival na uporabnost, natančnost, integracijo merjenja neposredno v proizvodnjo ter izdelavo novih principov merilne tehnike. Laboratorij je nosilec nacionalnega etalona za dolžine. Dr. Šostar je kot član meroсловnega sveta in komisije za etalonske baze vplival na razvoj in uveljavitev slovenskega meroсловja doma in v svetu. Bil je gostujoči profesor na TU v Grazu in predavatelj na znanih tehničnih univerzah. Je član vrste mednarodnih meroсловnih združenj.



Digitaliziranje nepoznanih poljubno oblikovanih površin s HOLOS. Tehniko merjenja s koordinatnimi merilnimi napravami je uspešno izvajal z razvojem nove programske opreme za merjenje zahtevnih poljubno oblikovanih prostorskih ploskev.

The digitalisation of unknown formed areas with HOLOS. The development of a new equipment programme intended for measuring products in more complex shapes enabled significant progress in the domain of measurement techniques.

Dr. Šostar has gained vast experiences originated from his practical work in developing new technologies in production, which he has used effectively in implementing research activities for coordinating measuring techniques. As head of the Laboratory of Production Measurement, which has acted as the principal national institution for measurement standards and became a successful demonstration and learning centre for transferring knowledge into practice. Research into developing program equipment for measurements of complex designed spatial planes received a positive response from manufacturers involved in the development of precision coordinate devices. The result has been the development of new functional, intentional measuring devices that contributed to more straightforward, more effective, and speedier production control. Dr. Šostar also successfully managed the synchronization of different methods of Quality Assurance with various measurement techniques. Noteworthy is also his participation in the development of the Slovenian national meteorological system.

Izbrane dela | Important Works

Ačko B, Šostar A, Pogorevc B, Družovec M (1994) Measuring error minimisation in design of new measuring devices. Elektrotech. Inf. Tech. 111:148–149.

Šerod M, Šostar A (1998) Determination of the influence of the structure on the measuring uncertainty CMM by FEM. SV 44:35–40.

Ačko B, Šostar A (2002) Modification of the model for measurement evaluation in a gauge – block calibration. SV 48:9–16.

Izbrane nagrade | Selected Awards

1984 državno odlikovanje – Red dela s srebrnim vencem / State decoration (labour award – silver wreaths)

1986 nagrada Zveze inženirjev Jugoslavije / Award of Yugoslav Association of Engineers

1990 nagrada fi. Carl Zeiss / Carl Zeiss Award

1995 Zlati znak / Golden Emblem, University of Maribor

2017 nagrada za življensko delo / Prize for life achievements by the Association of Slovene Mechanical Engineers



Jurij Tasič

1977 doktorira | PhD

1975–1980 razvoj inšumentov | Development of instruments for Carl Zeiss

1979–80 razvoj program. opreme za ELES | Development of multi-processor architecture for ELES

1989 redni profesor | Full professor, University of Ljubljana

1992–1994 gostujući profesor in raziskovalec | Visiting professor and researcher at Un. of Westminster in Loughborough University of Technology

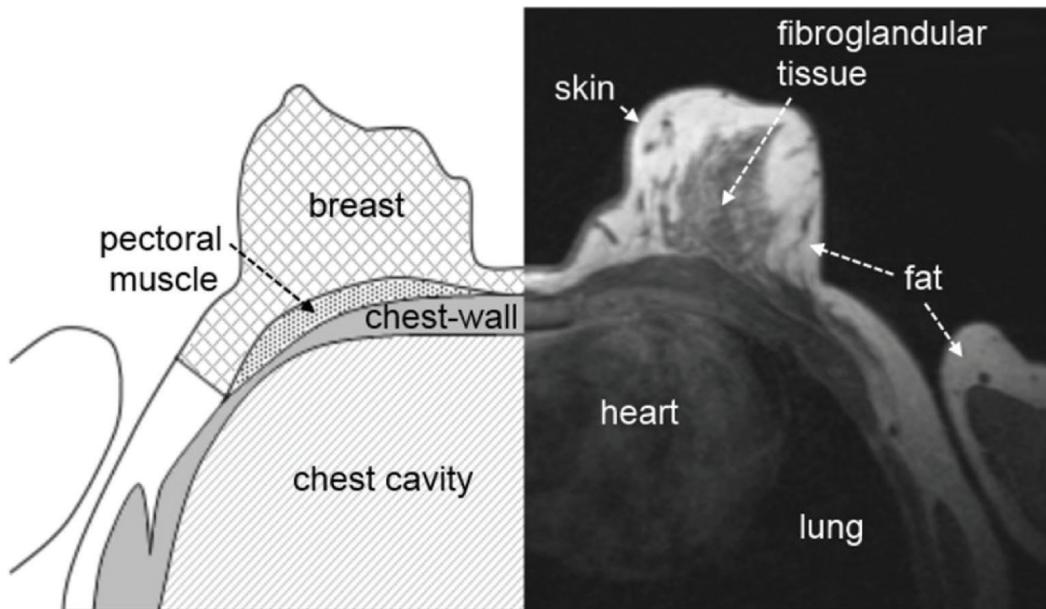
1994 ustanovil Laboratorij za digitalno obdelavo signalov in slik | Chair, founder of Signal and Image Processing Lab, University of Ljubljana

1996–2003 tajnik | Secretary, IAS

2004–2008 podpredsednik Sveta za visoko šolstvo RS | Vice-president of the Council for Higher Education

2000–2004 predstojnik katedre UL FE | Department head, UL FE

Dr. Jurij F. Tasič se je strokovno izpopolnjeval na področju teorije sistemov. Ta pristop mu je omogočil razumevanje realnih procesov, podanih z ustrezнимi enačbami. Zaradi potreb po obdelavi signalov v realnem času je v letih 1974 in 1975 razvil računalniški sistem DARTA 80, ki je bil osnova mnogim razvojnim projektom, kasneje pa še enokartični računalnik, zasnovan na operacijskem sistemu CPM. Kljub problemov, ki so zahtevali poglobljeno razumevanje eno- in večdimenzionalnih signalov in adaptivnih sistemov, se je laboratorij usmeril v uporabo metod umetne inteligence pri analizi in razpoznavanju eno- in večdimenzionalnih signalov. Usmeril se je v raziskavo sprotne obdelave signalov. Uspešno je razvijal algoritme za potrebe razpoznavanja medicinskih signalov in slik na področjih analize signalov EKG, neinvazivnega slikovnega odkrivanja mišičnih struktur, rakastih tvorb, telemedicine itd. Pri tem razviti algoritmi še danes nudijo podporo medicinskemu osebju pri odločjanju in postavljanju posameznih diagnoz. Kot profesor in raziskovalec je sodeloval z več univerzami po Evropi.



Anatomija dojka. Leva slika predstavlja shemo z zanimivimi telesnimi območji, desna slika pa aksialno zajeto T1-uteženo MRI-skeniranje dela telesa (objavljeno v Comput Biol Med 62:55-64, 2015).

Breast anatomy. Image of a body scheme with a regions of interest (left) and axial T1-weighted MRI scan (right), both published in Comput Biol Med 62:55-64, 2015.

Dr. Jurij F. Tasić's field of research and development is systems theory. Due to the need for real-time processing, he developed the DARTA 80 computer system, which represented the basis for many research and industrial projects. In 1979 he developed a CPM-based single board computer. He focused on using artificial intelligence methods in data analysis and pattern recognition in the area of one and more dimensional signals. He cooperated with professor D. J. Evans, a mathematician, and researcher of parallel algorithms, to develop new approaches to the fast execution of algorithms. For the application of this knowledge in medicine, he has developed algorithms for pattern recognition in dedicated medical signals and images. Such an approach has been successfully used in the fields of ECG signal analysis, in the non-invasive imaging of muscle structures, automated breast cancer recognition, telemedical applications, etc. He has collaborated with several universities across Europe, e.g., Loughborough University of Technology, Imperial College, and Westminster University.

Izbrana dela | Important Works

J. Tasić, M. Gušev (1992) Systolic implementation of preconditioned conjugate gradient method in adaptive transversal filters. Parallel Computing 18: 1053-1065.

N. Suljanović, A. Mujčić, M. Zajc, J. Tasić (2004) Approximate computation of high-frequency characteristics for power line with horizontal disposition and middle-phase to ground coupling. Electric Power Systems Research 69:17-24.

A. Mujčić, J. Tasić et. al. (2004) Influence of data frame duration on performance of BITCM system over HV power line. In Joint 1st Workshop on Mobile Future & Symposium on Trends In Communications, Piscataway, 150-153.

Izbrane nagrade | Selected Awards

2015 nagrada "Donald Michie in Alan Turing" za življensko delo | "Donald Michie and Alan Turing" award for life achievements in Slovenian Information Society



Miha Tomaževič

1942 rojen v Ljubljani | Born in Ljubljana, Slovenia

1977 magistrira, Inštitut za potresno inženirstvo, Skopje | Master's in earthquake engineering, Institute of Earthquake Engineering, Skopje

1985 doktorira, Univerza v Ljubljani | PhD, University of Ljubljana

1994–1995 svetovalec za Svetovno banko | Consultant to The World Bank, India

1991 redni profesor, Univerza v Ljubljani | Professor, University of Ljubljana

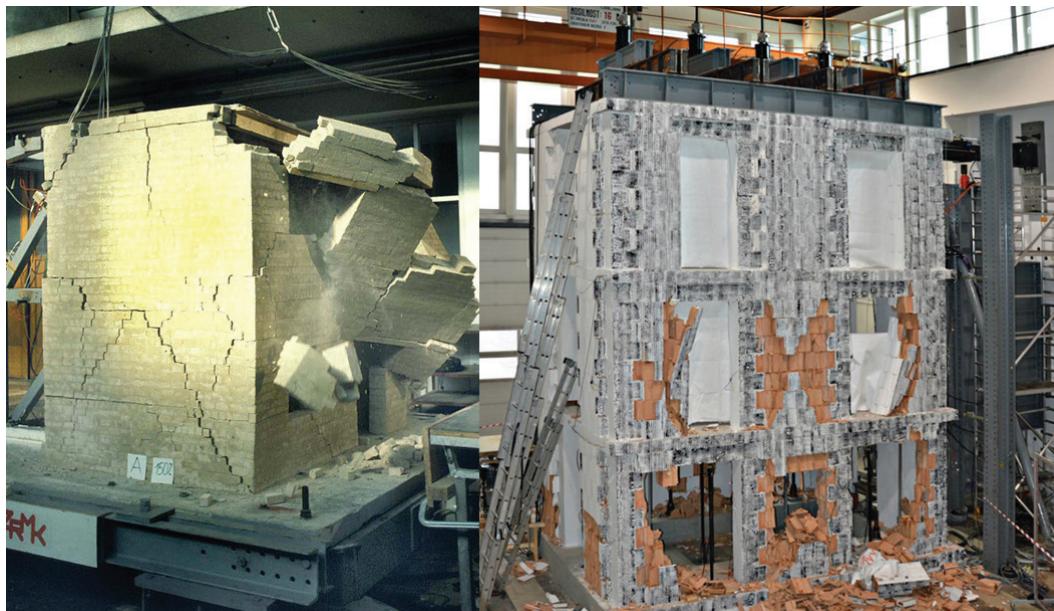
1996–2005 direktor | Director, Slovenian National Building and Civil Engineering Institute

1991 gostujući profesor | Visiting professor, University of Chile

1999–2001, 2003–2010 gostujući profesor | Visiting professor, University of Padua, Italy

2017 upokojen | Retired

Tomaževič raziskuje obnašanje zidanih konstrukcij pri potresni obtežbi. Z eksperimenti na modelih in konstrukcijskih elementih simulira obnašanje konstrukcij pri potresih, ugotovitve pa uporablja pri razvoju metod analize in projektiranja. Že pred štiridesetimi leti je za oceno potresne odpornosti zidanih konstrukcij uporabil metodo, ki se danes imenuje potisna (push-over) metoda. Predlagal je kriterije za uporabo sodobnih votlakov z izboljšanimi topotnoizolativnimi lastnostmi na potresnih območjih. Raziskoval je odvisnosti med sposobnostjo deformiranja zidanih konstrukcij in poškodbami, nastalimi pri posameznih mejnih stanjih, in na podlagi kriterija sprejemljivega obsega poškodb predlagal omejitve pri projektiranju. Velik del raziskav je posvetil tudi tehničnim ukrepom za zmanjšanje potresne ranljivosti obstoječih zidanih stavb, predvsem stavb arhitekturne kulturne dediščine. Na Zavodu za gradbeništvo Slovenije je do upokojitve vodil odsek za potresno inženirstvo, vodil je več kot 30 dvo- in večletnih raziskovalnih projektov ter predaval na številnih univerzah doma in v svetu.



Vrednosti parametrov za računsko modeliranje določamo z eksperimenti, ki po nazorijo obnašanje in poškodbe stavb med potresi. Pri nas obnašanje raziskujemo s preiskavami modelov na potresni mizi (levo) ali s preiskavo konstrukcij v naravnem merilu s ciklično vodoravno obrežbo (desno).

The values of parameters for numerical modeling are determined experimentally, simulating the observed seismic behaviour and damage to buildings. At the Institute, either shaking table tests of models (left) or quasi static cyclic test of full scale buildings (right) are used for this purpose.

Employed at Slovenian National Building and Civil Engineering Institute since 1967, Tomaževič has continued the work of his teacher, Professor Viktor Turnšek. By testing models and building masonry elements, he simulated observed seismic behaviour to collect information needed to develop numerical models. Forty years ago, he proposed that seismic resistance should be verified by a method, which nowadays is called the pushover method. Part of his research was aimed at reducing the seismic vulnerability of existing buildings, including architectural, cultural heritage. Professor Tomaževič has been a visiting professor at the Universities of Trento, Padua, Brescia, and Trieste in Italy, at the Universidad de Chile, Santiago, Chile, at the Technical University of Dresden, Germany, as well as at the Indian Institute of Technology in Roorkee, India. In addition, he has given more than 90 lectures and seminars at many universities and research institutes in Europe and the USA, Japan, China, Chile, Mexico, and India. He supervised 14 master's and doctoral students.

Izbrane dela | Important Works

Tomaževič M (1999) Earthquake resistant design of masonry buildings. Imperial College Press (Greek edition 2005).

Tomaževič M, Lutman M, Petković L (1996) Seismic behavior of masonry walls: experimental simulation. Journal of Structural Engineering, 122 (9): 1040-1047.

Tomaževič M, Klemenc I (1997) Seismic behaviour of confined masonry walls. Earthquake Engineering & Structural dynamics, 26 (10): 1059-1071.

Izbrane nagrade | Selected Awards

- 1986 Boris Kidrič Foundation Award
- 1993 Outstanding paper award, The Masonry Society
- 1993 Silver medal of Civil Protection
- 2005 Scalzi Research Award, The Masonry Society
- 2005 Farhad Naeim Prize, Earthquake Engineering Research Institute
- 2010 Life-time achievements award, Chamber of Engineers of Slovenia
- 2013 Special recognition award, Canadian Masonry Symposium
- 2016 Recognition award, Friuli – Venezia Giulia, Italy.



Marko Topič

- 1996** doktor elektrotehniških znanosti na UL FE | PhD in Electrical engineering at the University of Ljubljana
- 1997** docent na UL FE | Assistant professor at UL FE
- 2002** izredni profesor na UL FE | Associate professor at UL FE
- 2006** redni profesor na UL FE | Full professor at UL FE
- 2011** nazivni profesor na Colorado State University | Affiliate faculty at the Colorado State University
- 2014** predsednik Evropske tehnološke platforme za fotovoltaiko | Chair, European Photovoltaic Technology Platform
- 2015** predsednik Znanstvenega sveta ARRS | President, Scientific Council of the Slovenian Research Agency
- 2016** dopisni član Mednarodne inženirske akademije | Associate member of International Academy of Engineering

Prof. dr. Marko Topič je zaposlen kot redni profesor na Fakulteti za elektrotehniko Univerze v Ljubljani, kjer je predstojnik Laboratorija za fotovoltaiko in optoelektroniko in predstojnik Katedre za elektroniko. Dr. Marko Topič se že več kot petindvajset let osredotoča na raziskave s področja fotovoltaike in optoelektronike. Kot štipendist Humboldtove fundacije se je podoktorsko usposabljal na Inštitutu za fotovoltaiko v Raziskovalnem centru Juelich v Nemčiji (1998 in 2000). Kot profesor je gostoval na Fachhochschule Koeln v Nemčiji (2002) in na Colorado State University v ZDA (2005–2011), kjer je od leta 2011 nazivni profesor. V zadnjih petih letih je bil slovenski nosilec osmih evropskih projektov okvirnih programov FP7 in H2020. Od leta 2007 je član Upravnega odbora Evropske tehnološke in inovacijske platforme za fotovoltaiko, ki ji od leta 2014 tudi predseduje.



Prof. Marko Topič na preizkuševališču fotonapetostnih modulov na strehi UL FE.

Prof. Marko Topič at the outdoor testing field of photovoltaic modules on the rooftop of the University of Ljubljana Faculty of Electrical Engineering.

Izbrane dela | Important Works

M. Jošt et al. (2017) ACS Photonics 5: 1232-1239.

M. Topič et al. (2015) Solmat 135 57-66.

J. Krč, M. Topič (2013) Optical modeling and simulation of thin-film photovoltaic devices. CRC Press.

Izbrane nagrade | Selected Awards

2018 Jabolko navdiha, posebno priznanje predsednika Republike Slovenije Boruta Pahorja | Apple of Inspiration, Award by the President of the Republic of Slovenia Borut Pahor

2008 Zoisova nagrada | Zois Award – the highest national Award for Outstanding Scientific Achievements

2000 Zoisovo priznanje | Zois Certificate of Recognition

1997 Zlati znak Jožefa Stefana | The Jozef Stefan Golden Emblem Prize

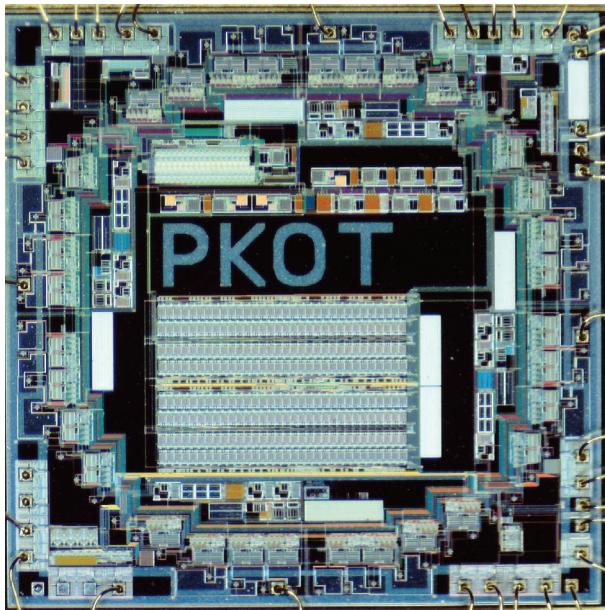
Professor Marko Topič received his PhD in Electrical Engineering from the University of Ljubljana, Slovenia, in 1996. Since 2006 he has been with the Faculty of Electrical Engineering, University of Ljubljana, as professor and head of the Laboratory of Photovoltaics and Optoelectronics. He is also an affiliate faculty professor at Colorado State University. Professor Topič is the chair of the European Technology & Innovation Platform Photovoltaics since 2014. Internationally he serves as the Slovenian representative on the European Scientific Advisors Forum. In the 7th Framework Programme (2008-2012), he served as a member of the Advisory Group on Energy. In Slovenia, he is the President of the Scientific Council of the Slovenian Research Agency (mandate 2015-2020). He is also a member of the Slovenian Academy of Engineering and a member of the International Academy of Engineering.



Janez Trontelj

- 1965** diplomira, Fakulteta za elektrotehniko | Degree in Electrical engineering, University of Ljubljana
- 1969** magistrira, Fakulteta za elektrotehniko | Master's, Faculty of Electrical Engineering, University of Ljubljana
- 1971** doktorira, Fakulteta za elektrotehniko | PhD, Faculty of Electrical Engineering, University of Ljubljana
- 1985** redni profesor, Fakulteta za elektrotehniko | Full professor, Faculty of Electrical Engineering, University of Ljubljana

Janez Trontelj je soustanovitelj slovenske mikroelektronike in je vodilni načrtovalec integriranih vezij ASIC za slovensko industrijo. Bil je vodja razvojne skupine v firmi American Microsystems Inc. v Kaliforniji, kjer je zasnoval sam ali s sodelavci vrsto svetovnih prvencev integriranih vezij v sedemdesetih in osemdesetih letih, med drugim tudi prvo integrirano vezje za telefonski aparat. Licenca za proizvodnjo je bila prodana v ZDA in na Japonsko. Vodi Laboratorij za mikroelektroniko na Fakulteti za elektrotehniko (LMFE). Do danes je zasnoval ali je vodil načrtovanje več kot 300 integriranih vezij, ki pomembno prispevajo k razvoju slovenske elektronske industrije.



Fotografija prikazuje izum merilnika kota z magnetnim mikrosistemom, realizanim na čipu. Izum je bil posredovan slovenski firmi RLS in je bil povod za vstop RLS v partnerstvo z angleško firmo Renishaw. RLS je zaradi tega produkta prepoznan kot najodličnejši proizvajalec na globalnem trgu.

The photograph above shows the innovation of an angle measurement microsystem realized on a microchip. This innovation was made available to the Slovenian company RLS and was the basis of their partnership with the English company Renishaw. RLS is as a result of this product recognized as the best manufacturer of such products on the global market.

Janez Trontelj was a co-founder of the Slovenian microelectronics company RLS, the leading designer of Application Specific Integrated Circuits (ASIC). He was a leader of the Joint Development Team (JDT) in American Microsystems Inc. in California, where he developed by himself or together with co-workers several industry-first integrated circuits in years 1970 to 1990. Among them, the first integrated circuit for a telephone set, the production licence for which was sold to the US and Japan. He is the head of the Laboratory for Microelectronics at the Faculty of Electrical engineering (LMFE). He is the author or leading designer of over 300 integrated circuits, which significantly contributed to the development of the Slovenian electronics industry.

Izbrana dela | Important Works

J. Trontelj et al. (2014) A high performance room temperature THz sensor. In M Razeghi (ed.), Terahertz emitters, receivers, and applications V, (SPIE, vol. 9199).

J. Trontelj, L. Trontelj, G. Shenton (1989) Analog digital ASIC design. McGraw-Hill Book Company.

Izbrane nagrade | Selected Awards

1973 priznanje ETANA

1982 priznanje Iskre

1976, 1980, 1981, 1986 nagrada Sklada Borisa Kidriča za izume in tehnične izboljšave

1986 priznanje inovator leta ORS Kranj

2011 priznanje društva MIDEM za strokovno delo

2013 častno priznanje za strokovno delo, zaslužni član Društva elektrotehnikov Slovenije

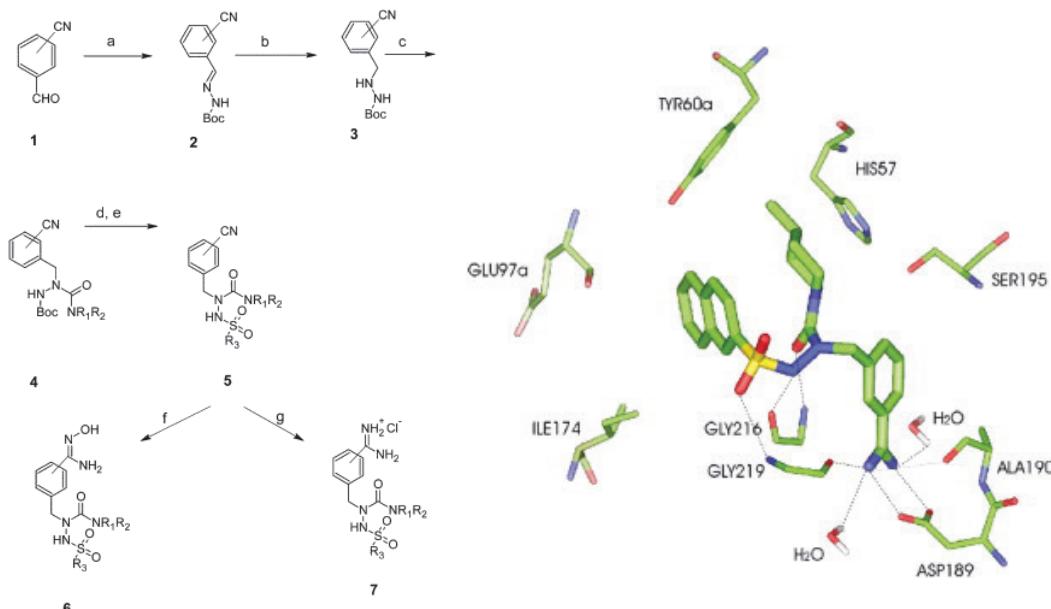
2020 Puhova nagrada za življensko delo



Uroš Urleb

- 1980** diplomira iz sinteze heterocikličnih spojin | Degree, majoring in synthesis of heterocyclic compounds
doktorira s področja sinteze heterocikličnih spojin | PhD in synthesis of heterocyclic compounds
- 2000** redni profesor za področje farmacevtske kemije | Professor medicinal chemistry University of Ljubljana
- 2000** član uprave Lek farmacevtska družba d.d. | Member of Management Board, Lek Pharmaceuticals
- 2008** glavni raziskovalni direktor Globalni razvoj izdelkov Sandoz International Nemčija | Chief Scientific Officer, Sandoz International, Germany
- 2012** globalni vodja tehničnega razvoja biofarmacevtike | Global Head, Technical Development Bioharmaceuticals Sandoz-Novartis company

Dr. Urleb je bil prvi del kariere v akademski sferi, ukvarjal se je z organsko sintezo heterocikličnih spojin v skupini akademika prof. dr. Branka Stanovnika. Kasneje se je ukvarjal s farmacevtsko kemijo in načrtovanjem in sintezo novih zdravilnih učinkovin na področju trombinskih inhibitorjev, antilipemikov in novih antibiotikov na Fakulteti za farmacijo Univerze v Ljubljani in na Univerzi v Gradcu v Avstriji in Univerzi v Heidelbergu v Nemčiji. Kot profesor je gostoval na univerzah v Parizu, Philadelphia, Halleju, Gradcu in Heidelbergu. Od leta 2000 je zaposlen v Leku in Novartisu kot član uprave za razvoj in raziskave, izvršni direktor raziskav novih učinkovin, kot glavni raziskovalni direktor Globalnega razvoja zdravil v Sandozu in kot vodja Globalnega tehničnega razvoja biofarmacevtike v Novartisu, kjer je vodil tehnični razvoj podobnih bioloških zdravil, od katerih jih je osem na trgu v Evropi, v Ameriki pa je Novartis lansiral prvo podobno biološko zdravilo in prvo kompleksno biološko zdravilo.



Med najpomembnejšimi deli so načrtovanje in sinteza novih zdravilnih učinkovin in njihove rentgenske strukture vezave na molekularne tarče.

Dr. Urleb's most important scientific work encompasses drug design, synthesis and structure elucidation, and binding on molecular targets.

Izbrane dela | Important Works

Urleb U et al. (2007) Recent Advances in Serine Protease Inhibitors as Anticoagulant Agents. *Curr. Pharm. Design* 13:287-312.

Urleb U et al. (2007) Amidinophenylalanine derivatives as thrombin inhibitors. US 7,285,547.

Humljan J, Urleb U, Gobec S et al. (2008) Novel naphthalene-N-sulfonyl-d-glutamic acid derivatives as inhibitors of MurD, a key peptidoglycan biosynthesis enzyme. *J. Med. Chem.* 51:7486-7494.

Izbrane nagrade | Selected Awards

1989, 1996 štipendija fundacije Alexander von Humboldt | Alexander von Humboldt Fellow: postdoctoral research

2012 Sandozova nagrada za odličnost | Sandoz Excellence Award

Dr. Urleb worked in academia during the first part of his career, focusing on the organic synthesis of heterocyclic compounds in the group of Professor Branko Stanovnik. Later he was engaged in medicinal chemistry and drug design, including discovering new thrombin inhibitors, new hypolipidemic, and novel antibiotics at the University of Ljubljana, the University of Graz, and the University of Heidelberg. He has been a visiting professor at universities in Paris, Philadelphia, Halle, Heidelberg, and Graz. In 2000 he joined Lek Pharmaceuticals company and in 2002 Novartis, where he holds several high-level functions, including a member of the management board of management responsible for R&R, executive director of the Drug Discovery Unit, Chief Scientific Officer for Global Product Development of Sandoz-Novartis, and Global Head of Technical Development Biopharmaceuticals, where he was also responsible for the technical development of biosimilars. Eight biosimilars are marketed in Europe and the USA, and USA Novartis was the first company to launch biosimilar and complex biosimilar medicine.



Rok Uršič

1963 rojen v Postojni | Born in Postojna, Slovenia

1989 diplomira iz 4x4 Butlerjeve matrice v mikrostrip tehnologiji | Degree, majoring in 4x4 Butler matrix utilizing microstrip technique

1990 razvojni inženir | Development engineer, Sincrotrone Trieste, Italy

razvojni inženir in vodja oddelka | staff electrical engineer and group leader, Jefferson Lab, Newport News, VA, USA

1998 ustanovitelj in direktor | Founder and CEO Instrumentation Technologies d.o.o., Solkan, Slovenia

2014 soustanovitelj in predsednik upravnega odbora | Co-founder and president of the board, Red Pitaya d.d., Solkan, Slovenia

2018 soustanovitelj in direktor | Co-founder and CEO, Cella Medical, Inc., San Diego, USA

Poznavanje visokih frekvenc, za katere ga je navdušil prof. dr. Jože Mlakar na Fakulteti za elektrotehniko v Ljubljani, mu je odprlo vrata v svet visokih energij pospeševalnikov osnovnih delcev. Ti so ene najbolj zapletenih naprav, ki so bile kdajkoli zgrajene. V tem obdobju se je kalil kot razvojnik in vodja razvojnih skupin v Italiji, ZDA in Švici. Spoznanje, da imamo v Sloveniji veliko vrhunskega inženirskega znanja in kadra, ga je navdahnilo, da je v Solkanu ustanovil najprej podjetje Instrumentation Technologies in kasneje še Red Pitaya, ki sta obe vodilni v svetovnem merilu v svojih tržnih nišah. Danes kot direktor zagonskega podjetja Cella Medical v San Diegu, ZDA, skupaj z mednarodno ekipo postavlja temelje za povsem nov pristop pri vodenju pacientov s srčnim popuščanjem in kronično ledvično boleznijo na daljavo. Rešitev temelji na slovenskem inženirskem znanju.



Izdelek Libera Brilliance+ temelji na Uršičevem patentu in velja po več kot 15 letih še vedno za globalni »zlati standard« med sistemi za merjenje in stabilizacijo pozicije žarka na pospeševalnikih osnovnih delcev.

Based on Uršič's patent, the Libera Brilliance + is after more than 15 years still considered the global "gold standard" among systems for measuring and stabilizing beams in particle accelerators.

Whenever I founded or co-founded a technology company, I felt this urge out of nowhere: this is what I must do, this is what I've got to have, this is who I am. I co-founded, and I am currently the CEO of a San Diego-based digital health startup Cella Medical. I also enjoy mentoring teams at Instrumentation Technologies and Red Pitaya, two companies that I founded in Slovenia, leading in their respective global technology niches. Before being "called" onto this particular path of funding and growing companies, I worked as an engineer on particle accelerators, the most complex machines ever built. Those huge and expensive machines don't just hunt for obscure subatomic particles and can be used for decidedly more down-to-earth projects like fighting cancer and cleaning up industrial waste. I see building companies as an inherently nonlinear and profound engineering challenge.

Izbrana dela | Important Works

Red Pitaya Frost & Sullivan's 2014 Global New Product Innovation Award - Electronic Test & Measurement Tools.

US Patent No 6972552 (2004) Method for the precise measurement of dependency on amplitude and phase of a plurality of high frequency signals and a device for carrying out said method.

Rok Uršič (2002) Reconfigurable Instrumentation Technologies, Architectures and Trends, AIP Conference Proceedings 648.

Izbrane nagrade | Selected Awards

2008 nagrada GZS za izjemne gospodarske in podjetniške dosežke | Award for extraordinary economic and entrepreneurial achievements

2008 Puhovo priznanje | Puh Certificate of Recognition



Peter Venturini

- 1966** rojen v Ljubljani | Born in Ljubljana
1991 diplomira iz modeliranja zdravilnih učinkovin | Degree, majoring in active substance modelling
1996 doktorira iz raziskav fulerenov | PhD on fullerene research, University of Ljubljana
2000 magistrira | MBA, University of Kansas
2006 docent | Assistant professor, University of Maribor
1996 vodja projektov | Project Manager, Lek Pharmaceutical company
1999 direktor | Director, National Institute of Chemistry, Slovenia
2008 pomočnik predsednika Uprave za razvoj in raziskave | Assistant to the President of the Management Board for R&D, Helios Domžale
2018 direktor | Managing Director, Helios TBLUS Coating

Dr. Peter Venturini uspešno prepleta znanstvene raziskave v akademskih inštitucijah z inovacijami v industriji. Kot direktor podjetja Helios TBLUS d.o.o. pomembno prispeva k poslovanju podjetja, ki temelji na inovativnih izdelkih in storitvah za kupce na globalni ravni ter stalnemu posodabljanju proizvodnje. Izkušnje si je nabiral z delom v odličnih raziskovalnih skupinah, pri prof. Draganu Mihailoviću, Inštitut Jožef Stefan, in pri Nobelovemu nagrajencu prof. Alenu Heegerju, Univerza v Kaliforniji Santa Barbara, ter v številnih vodilnih podjetjih v Sloveniji in tujini. Glavno vodilo njegovega dela je zavedanje, da je za viden uspeh nujno sodelovanje skupine vrhunskih strokovnjakov ter dobri pogoji dela. Njegovo uspešno sodelovanje z mednarodnimi strokovnjaki z različnih področij je vodilo do odmevnih znanstvenih objav na področjih materialov in komercialno zelo uspešnih inovacij. V času vodenja Kemijskega inštituta je pomembno prispeval k izboljšanju raziskovalne opreme, mednarodni prepoznavnosti inštituta, sodelovanju z gospodarstvom ter širši vpetosti inštituta v družbo.



Izziv za dr. Venturinija je stalno posodabljanje produktov in uvajanje novih tehnologij. Za proizvodnjo okolju prijaznih premazov je podjetje Helios TBLUS postavilo novo reaktorsko linijo za sintezo polimerov na vodni osnovi.

An ever-exciting challenge for Dr. Venturini is taking ideas from the lab and realizing them on an industrial scale. Water-based polymer production technology provides an important basis for the company Helios TBLUS's manufacture of environmentally friendly coatings.

Dr. Peter Venturini is managing director of the company Helios TBLUS, one of the largest European coatings producers and part of Kansai Paint. He believes that people with a passion for innovation and a drive for continuous improvement are essential for the company's success. Dr. Venturini has a materials science background. His research at the Jožef Stefan Institute and the University of California at Santa Barbara focused on fullerenes' magnetic and optical properties. As a chemist, he always strives to establish cooperation with researchers from different backgrounds. His curiosity and effort to apply the knowledge obtained from research has led to several patent applications and successful innovations in the pharmaceutical and chemical industries. With his experience in managing science and innovation in the academic and industrial environment, he has contributed and continues to contribute to promoting and developing innovation in Slovenia.

Izbrane dela | Important Works

Mihailović D, Arčon D, Venturini P, Blinc R, Omerzu A, Cevc P (1995) Orientational and magnetic ordering of buckyballs in TDAE-C60. *Science*, 268 (5209):400-402.

Kofler B, Rebič LB, Fedija Širca J, Venturini P (2003) Pharmaceutical formulation with controlled release of active substances: United States Patent US 6,576,258 B1, date of Patent June 10, 2003: also published as EP1003487, SI9700186, AU756884.

Izbrane nagrade | Selected Awards

2005, 2012 Zlato priznanje za inovacijo | National Gold Award for Innovation, Chamber of Commerce, Slovenia

2018 Srebrno priznanje za inovacijo | National Silver Award for Innovation, Chamber of Commerce, Slovenia

1990 fakultetna Prešernova nagrada študentom | Prešeren Award for students, Faculty of Chemistry and Chemical Technology, University of Ljubljana

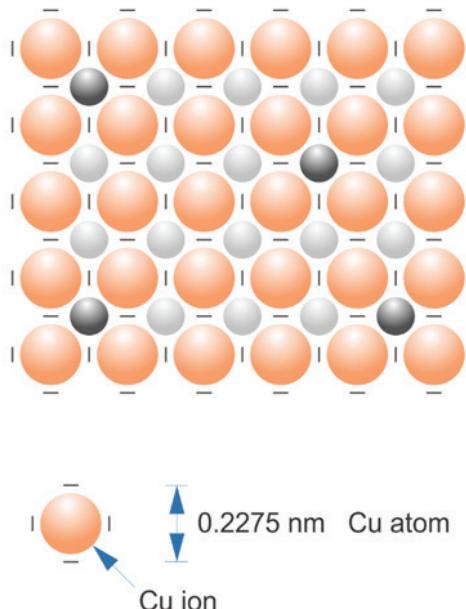
1990 Krkina nagrada | Krka Prize for Students



Franc Vodopivec

- 1931** rojen v Rakitniku pri Postojni | Born in Rakitnik at Postojna, Slovenia
- 1956** diplomira iz metalurgije | Degree in metallurgy, University of Ljubljana
- 1962** doktorira iz interakcij površine železa z majhnimi količinami arzena, fosforja in žvepla na Univerzi v Parizu / PhD in metallurgy at the Faculte de Science de Paris
- 1973** habilitiran docent Univerze v Ljubljani / Assistant professor, University of Ljubljana
- 1987** redni profesor / Full professor, University of Ljubljana
- 1991** direktor Inštituta IMT Ljubljana / Head of Institute of Metals and Technology (IMT), Ljubljana until retirement
- 1992–2002** državni svetnik / Member of Council of Slovenia

Dr. Franc Vodopivec je začel delati pri C. Rekarju na IMT. Po izpopolnjevanju na inštitutu IRSID (Institute de Recherches de la Siderurgie) je raziskoval interakcije površine železa z majhnimi količinami arzena, fosforja in žvepla ter zagovarjal doktorat na »Faculte de Science de Paris« pri J. Bernardu. Kot vodja laboratorija je začel raziskovati mikroskopsko zgradbo kovin in zlitin, mikrometrskih struktur. Kot direktor IMT je vzpostavil produktivne stike z elektroenergetiko in strojno industrijo ter ga uskladil s temeljnim, aplikativnim in razvojnim delom metalurških firm. Njegove izboljšave so proces bakrenja svitkov vroče valjane žice, nova žica, namenjena za avtomatsko varjenje jeklenih plošč. Zmanjšali so razpoke konstrukcijskega jekla, legiranega z vanadijem. Z avtogenim rezanjem gredic v Štorah so povečali izkoristek za 5–6 %. Zadnja leta se posveča temeljnemu vprašanjem teoretične fizike kovin, predvsem vprašanjem nanostruktur kovinske kristalne rešetke in prevodnosti in upornosti kovin ter toka elektronov in kvantov skozi kristalno rešetko kot temelju prevodnosti.



Segment prerez žice z navideznimi prerezmi bakrovih atomov, ionov in intersticijskih kvantnih poti (qp), z nekaterimi atomi kisika. Izračunani presek rešetke posameznega atoma je označen s štirimi črticami, ki predstavljajo 4 ravnine amplitude vibracij FE.

Segment part of wire cross-section with apparent sections of copper atoms, ions, and interstitial quanta-paths (qp), some with oxygen atoms. The calculated section of atom lattice space is marked with four dashes representing 4 FE vibration amplitude planes.

Professor Vodopivec began his career in the Laboratory for Metallography (LM), which he headed after finishing his studies in IRSID (Institut de Recherches de la Sidérurgie, Paris), researching interactions of the surface of the iron with small quantities of arsenic, phosphorus, and sulfur. He defended his doctoral thesis at the Faculté de Science de Paris with J. Bernard, a member of the Institut de France. His main objective was to carry out new research on novel metal and alloy structures. Furthermore, his duty as head of the Metallurgic Institute required that he dedicated his work entirely to productive contacts within the metallurgy, electricity generation, engineering, and electrical industries. He introduced several innovative technologies through consulting and by directing new investments, in particular in the major iron steel factories in Jesenice, Ravne, and Štore. In the last years, he has focused on the fundamental questions of theoretical physics of metals with the emphasis on nanostructures of the crystal lattice in relation to conductance and resistance in metals and the flow of electrons through a crystal lattice as the basis of conductance.

Izabrana dela | Important Works

I. Jandrić, S. Rešković, F. Vodopivec, P. Lava (2016) Dependence of thermo-elastic effect..., Met Mat Int 23:407-412.

F. Vodopivec (2002) Kovine in zlitine, kristalna zgradba, mikrostuktura in lastnosti | Metals and alloys, crystal structure, microstructure and properties, 474 p.

F. Vodopivec, A. Koux (1961) Comptes rendus des... t. 253, p. 448-450, Etude quantitative de l'enrichissement superficiel...

Izbrane nagrade | Selected Awards

1977 nagrada Kidričevega sklada za tehnične vede | Kidrič Foundation Award for Technical Sciences

1984 Kidričeva nagrada za tehnične vede | Kidrič Award for Technical Sciences

2003 Zoisova nagrada za življenjsko delo | Zois Award for lifetime achievement

2018 Puhova nagrada za življenjsko delo | Puh Award for lifetime achievement



Blaž Zupan

1968 rojen v Postojni | Born in Postojna, Slovenia

1991 diplomira iz celularnih modelov celjenja ran | Degree, majoring on cellular automata for modelling of wound healing, University of Ljubljana

1993 magistrira | Master's, University of Houston, Computer Science

1997 doktorira iz konstruktivne indukcije | PhD on constructive induction, University of Ljubljana

1997 docent | Assistant professor, University of Ljubljana

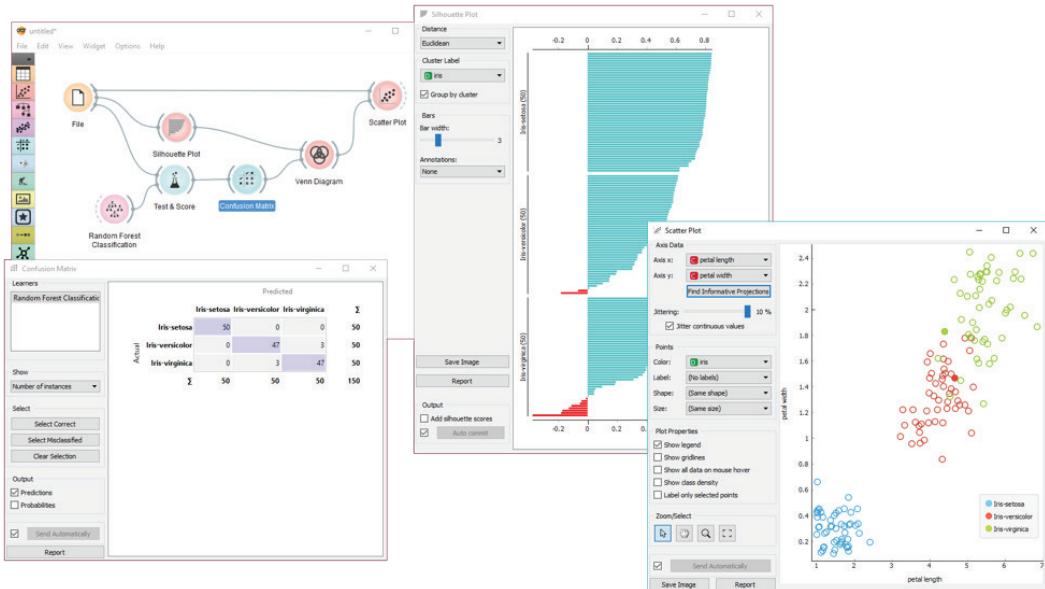
2000 gostujuči profesor | Visiting professor, Baylor College of Medicine, Houston, USA

2008 gostujuči profesor | Visiting professor, University of Pavia, Italy

2009 redni profesor | Full professor, University of Ljubljana

2010 vodja | Chair, Bioinformatics Lab, University of Ljubljana

Dr. Zupan izhaja iz šole umetne intelligence, ki jo je pri nas utemeljil akademik prof. dr. Ivan Bratko. Ta izpostavlja razumevanje in komunikacijo med človekom in strojem, kot odločevalca izpostavlja človeka, kot podporo pri odločanju pa ustrezne algoritme. Zupana je zato od nekdaj zanimala sinteza novega znanja iz podatkov, pojasnevanje odkritega z berljivimi pravili, in v zadnjem času predvsem tehnike vizualizacije podatkov. Na Fakulteti za računalništvo in informatiko Univerze v Ljubljani vodi raziskovalno skupino, ki jo druži razvoj programa za interaktivno podatkovno analitiko Orange ter izdelava praktičnih orodij za podatkovno rudarjenje, predvsem na področju molekularne in sistemsko biologije. Kot profesor redno gostuje in predava na Baylor College of Medicine v Houstonu, ZDA.



Med Zupanovimi najpomembnejšimi deli je vodenje razvoja programa za podatkovno analitiko Orange (skupaj z dr. Janezom Demšarjem). Orange odlikujejo interaktivne vizualizacije in vizualno programiranje, pa tudi všečni in enostavni vmesnik. Vsakodnevno ga uporabljajo tisoči iz celega sveta.

With dr. Janez Demšar, Zupan leads the development of Orange, a data mining tool that features interactive visualizations, visual programming, and intuitive interface. Orange is daily used worldwide by thousands of data miners.

Dr. Blaž Zupan has been working on machine learning seemingly forever. He heads the bioinformatics lab at the University of Ljubljana and is a visiting professor at the Baylor College of Medicine in Houston. His research has focused on constructive induction, machine learning, and epistasis approaches to reconstruct gene networks, large-scale data fusion, and algorithms to propose informative data visualizations. He believes that crafting simple tools that anybody can use to understand data is essential to advancing humanity and democracy. His lab developed Orange (<http://orangedatamining.com>), a fully open-source, ever-evolving data mining suite with a visual programming environment. He also enjoys writing scripts for YouTube videos to explain data science (check out <http://youtube.com/orangedatamining>) and preparing courses that introduce data science.

Izbrana dela | Important Works

Zitnik M, Zupan B (2015) Data fusion by matrix factorization. *IEEE Transactions on Pattern Analysis and Machine Intelligence* 37(1):41-53.

Juvan P, Demsar J, Shaulsky G, Zupan B (2005) GenePath: from mutations to genetic networks and back, *Nucleic Acids Research* 33: W749-W752.

Zupan B, Bohanec M, Demsar J, Bratko I (1999) Learning by discovering concept hierarchies. *Artificial Intelligence* 109:211-242.

Izbrane nagrade | Selected Awards

- 2008, 2012, 2014, 2015, 2016, 2017
naj-profesor | student's best teacher award, University of Ljubljana, Faculty of Computer Science
- 2016 New Europe 100 Challenger - Changemakers in Central and Eastern Europe, by Visegrad Found, Google and Financial Times
- 2013 stipendija Fullbright, Fullbright Scholarship
- 2011 Zlato priznanje | Gold Plaque, University of Ljubljana
- 2010 Zoisovo Priznanje | Zois Distinction
- 1999 Zlati znak Jožefa Stefana | The Jožef Stefan Golden Emblem



Danijel Zupančič

- 1977** diplomira | BSc at the Faculty of Mechanical Engineering in Ljubljana (Strengths in the conical shell)
- 2006** magistrira | MSc at the Faculty of Mechanical Engineering in Ljubljana (Mechanical properties of the sandwich panels regarding to the mass density of core and to the production parameters)
- 1993** tehični direktor | Technical Director, Trimo d.d.
- 2014** samostojni podjetnik | Owner and manager

Kot raziskovalec je dr. Zupančič deloval na razvoju in prenosu novih visokoavtomatiziranih tehnologij energetsko učinkovitega, požarno varnega ovoja zgradb. Je avtor ali soavtor več mednarodno podeljenih patentov, ki so Trimo pripeljale v vrh svetovno prepoznavnih podjetij v panogi. Vodil je razvoj sistemov robotizirane montaže na gradbiščih in razvoj robotizirane tehnologije visokokvalitetnih elementov fasad Qbiss, ki so vgrajeni v zgradbe mednarodnih letališč (London, Erevan, Skopje...), McLarna, Porscheja, Mercedesa, pomorskega terminala v Sočiju, Lego. Bil je vodja projekta prenosa v Sloveniji razvitih tehnologij za postavitev tovarn v Ruski federaciji in Srbiji ter vodja projekta prenosa tehnologije modularnih bivalnih enot v Združenih arabskih emiratih. Kot raziskovalec je uvajal principe trajnostnega razvoja z elementi krožne proizvodnje, za kar je podjetje prejelo nagrado Horus za naj-družbeno odgovorno podjetje v Sloveniji (2009). V letih 2004–2014 je uvajal digitalizacijo z vizualizacijo vodenja, spremeljanje proizvodnje prek spletja in dela na gradbiščih na dajavo, ter uvajal tehnologije BIM.



Prejem nagrade Taras z razvojno ekipo – Forum IRT v letu 2012.

Taras Prize Award with Development Team – IRT Forum in 2012.

As a researcher, Dr. Zupančič has worked on developing and transferring high-tech technologies for energy-efficient, fireproof facades. He is the author or co-author of several internationally granted patents that brought the Trimo company to the top of world-recognized companies in its industry sector. He has led the development of robotic assembly at construction sites and the development of robotic technology for the manufacture of Trimo's Qbiss façade elements. These elements are built into international airport buildings (London, Yerevan, Skopje), industrial buildings and company headquarters (e.g., for the companies McLaren, Porsche, Mercedes, Lego) as well as for the Sochi port terminal. He was the project leader for transferring advanced technologies developed by the company to the Russian Federation, Serbia, and the United Arab Emirates. As a researcher, he introduced the principles of sustainable development, a circular economy for which the company received the Horus Award for the most socially responsible company in Slovenia (2009). In the years 2004-2014, he introduced digitization and visualization in the company, especially online monitoring and management in both production and on construction sites as well as BIM technology.

Izbrana dela | Important Works

Internationally granted patents: EP 1 060 313 B1 (SI50272- Slovenia, PI9908481-3- Brasilia, CA02322436- Canada; 99803613.7-China, 002651- Eurasia); 0052221(Eurasia); SI23296.

D. Zupančič (2012) The aspects of sustainable development in engineering practice, World Engineering Forum.

Izbrane nagrade | Selected Awards

- 2007 priznanje članu projektné skupine za prvo CO₂ neutralno zgradbo v Veliki Britaniji | “Planet Positive’s” recognition of the first CO₂-neutral building in the UK as a member of project team
- 2010 nagrada za razvoj prototipa robotizirane montaže | RTT Award, 3rd place, European Robotic Technology Platform as a leader of development team;
- 2012 nagrada Taras | Taras Award for the development of highly insulated building elements (member of development team)

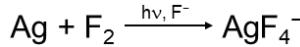
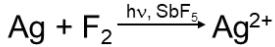


Boris Žemva

- 1971** doktorira | PhD in inorganic chemistry, University of Ljubljana
- 1983** diplomira iz ekonomije | Bachelor's degree in Economics, University of Maribor
- 1985** redni profesor | Full Prof., University of Ljubljana
- 1972–1973** podoktorsko izpopolnjevanje | Postdoctoral fellow at the University of California, Berkeley
- 1993** gostujoči Miller Profesor | Visiting Miller Professor at Berkeley
- 1997** gostujoči profesor na Institutu za kemijo kondenzirane snovi, Bordeaux | Visiting Professor at the Institut de Chimie de la Matière Condensée de Bordeaux, France
- 1995** predsednik 11. Evropskega simpozija za kemijo fluora | Chairman of the 11th European Symposium on Fluorine Chemistry, Bled.

Glavno področje njegovega raziskovalnega dela je anorganska kemija fluora in njegovih spojin s posebnim poudarkom na visokoenergijskih oksidantih, novih binarnih fluoridih in na koordinacijskih spojinah s fluoridi žlahtnih plinov kot ligandi. Visokoenergijski oksidanti so spojine, ki so močnejši oksidanti kot molekularni kisik, saj so te spojine sposobne odvzeti kisikovi molekuli elektron, tako da dobimo kation O_2^+ . Za to potrebna energija je več kot 12 eV. V tem okviru so sintetizirali vrsto novih binarnih fluoridov, kar predstavlja podoben dosežek, kot je bila izolacija novih elementov pred stodvajsetimi leti. Izolirali so več kot šestdeset koordinacijskih spojin z binarnimi fluoridi žlahtnih plinov, predvsem XeF_n , vezanimi direktno na centralni atom. Največja uporaba spojin žlahtnih plinov izhaja iz šibnosti njihovih vezi in relativne inertnosti reakcijskih produktov. XeF^+ in KrF^+ sta elektrofilna oksidanta in delujeta kot vir F^- . XeF_2 se uporablja kot verzatilno sredstvo v organski sintezni kemiji.

acidic	neutral	basic
AgF^+	AgF_2^+	AgF_3
NiF_2^+	NiF_3^+	NiF_4^{2-}



Splošna shema odvisnosti tvorbe kationov, binarnih fluoridov in kompleksnih anionov pri kemijskih reakcijah v kislo-baznem mediju. Podana sta primera fotokemične reakcije srebra in elementarnega fluora v kislem brezvodnem vodikovem fluoridu (*aHF*) in v bazičnem *aHF*.

Generalized scheme for acid – base dependence of the formation of cations, binary fluorides and complex anions. The examples of the photochemical reaction between silver and elemental fluorine in acidic anhydrous hydrogen fluoride (*aHF*) and in basic *aHF* are given.

My main research interests are inorganic fluorine chemistry, high energy oxidizers and coordination compounds with noble gas fluorides as ligands to the naked metal centre. In the field of high energy oxidizers we synthesized and characterized a whole set of new binary fluorides: NiF_4 , NiF_3 , Ni_2F_5 , AgF_3 , Ag_2F_5 and CuF_3 which are all able to oxidize xenon or oxygen gas. In the compounds of the type $\text{M}^{n+}(\text{AF}_6^-)_n$ where M is a metal in the oxidation state n and AF_5 is a Lewis acid. The metal centres are practically naked because of the relatively big anions. The fluorides of xenon, especially XeF_2 , can act as ligands to these metals forming coordination compounds of the type $[\text{M}^{n+}(\text{XeF}_2)_p](\text{AF}_6^-)_n$ where p is the number of XeF_2 molecules attached to the central atom. For the firm BASF from Ludwigshafen in Germany the fluorination procedure for fuel tanks made from HDPE was developed in order to minimize the permeability of the fuel mixed with methanol. The procedure was patented in 43 countries all over the world.

Izbrana dela | Important Works

B. Žemva et al., Silver Trifluoride : Preparation, Crystal Structure, Some Properties, JACS ,1991, 113, 4192-4198.

B. Žemva et al., Thermodynamically Unstable Fluorides of Nickel : NiF_4 and NiF_3 , JACS, 1995, 117, 10025-10034.

K. Radan, E. Goreshnik, B. Žemva, Xenon(II)Polyfluoridotitanates(IV), Synthesis and Structural Characterization of $[\text{Xe}_2\text{F}_3]^+$ and $[\text{XeF}]^+$ Salts, Angewandte Chem. 2014, 53, 13715-13719.

Izbrane nagrade | Selected Awards

1989 nagrada B. Kidriča za izjemne dosežke | B. Kidrič Award for exceptional achievements

1999 raziskovalna nagrada A. von Humboldt | A. von Humboldt Research Award

2001 ambasador za znanost | Ambassador of Science

2006 nagrada ACS za kreativno delo | ACS Award for creative work

2011 Zoisova nagrada za življenjsko delo | Zois Award for lifetime achievements

2012 izvoljen za mentorja leta | Elected for mentor of the year



Robert Žerjal

- 1950** rojen v Braniku | Born in Branik, Slovenia
- 1973** diplomira iz fizike trdne snovi | Degree, majoring in solid state physics, University of Ljubljana
- 1973** razvijalec vžigalnih sistemov | Development engineer for ignition systems
- 1977** vodja informatike | Head of informatics
- 1985** glavni direktor | CEO
- 1993** direktor razvojnega Inštituta | Director of the Development Institute
- 2000** član Upravnega odbora Univerze v Novi Gorici | Member of the supervisory board of University in Nova Gorica
- 2008** član Strateškega sveta za tehnološki razvoj | Member of the Strategic Council for Technological Development
- 2011** izvršni direktor za strateški razvoj | Executive director for strategic development
- Pomen krepitve sodelovanja med industrijo in akademsko izobraževalno in raziskovalno sfero v Republiki Sloveniji in s tem premoščanje »doline smrti« je bilo temeljno vodilo Roberta Žerjala pri organizaciji raziskav in razvoja v podjetju. Bil je iniciator povezovanja slovenske avtomobilske industrije v okviru razvojnega centra SiEVA, kreator ustanavljanja skupnih raziskovalno-razvojnih podjetji s fakultetami v Ljubljani (LetrikaLab d.o.o.) in Mariboru (TECES) ter aktivni član upravljavške strukture slovenskih Centrov odličnosti in član Strateškega razvojnega sveta pri GZS. Zasnoval je številne skupne slovenske in evropske raziskovalno-razvojne projekte, predvsem s področja elektro-mobilnosti in obnovljivih virov energije (MESIA, HEADS, MARBUS, EVA4Green, SUPER PV...), ki so botrovali številnim uspešnim inovacijam. Realizirane inovacije so imele ključen pomen za preživetje in uspešen razvoj podjetja ter posredno tudi na razvoj Goriške regije in države kot celote.



Solarni mikro razsmernik Letrika SMI260 z komunikacijo WMBUS ter funkcionalnostjo Smart-Grid z možnostjo generiranja jalove moči v odvisnosti od omrežne napetosti ter delovne moči v odvisnosti od omrežne frekvence.

Solar micro inverter Letrika SMI260 with WMBUS communication and Smart-Grid functionality: it has the possibility of generating reactive power depending on the grid voltage and operating power depending on the grid frequency.

As an engineer, Robert Žerjal has always been aware of the central importance of innovations and technical system solutions in increasing the company's added value and the value of the company itself. All the innovations in which he has participated were extremely cost-effective solutions based on essential technological and scientific findings, on the one hand, and the company's technological capabilities, on the other. Robert Žerjal is also the author and co-author of important patents, especially in three-phase electronically commutated non-contact DC electric motors and innovations in the field of photovoltaic micro-inverters. His research and development have had a key impact on the company's global competitiveness in brushless motor programs with integrated electronics, especially for the forklift industry, hybrid propulsion systems for boats, and electric power steering for cars. In terms of care for the environment, Robert Žerjal has always emphasized connecting electromobility with renewable energy sources.

Izbrana dela | Important Works

Patent: Three-phase electronically commutated brushless DC-motors (SI20602).

Patent: Rotor structure with permanent magnets for electromotors without brushes (SI21677).

Patent: Power generator without brushes and slip-rings (SI21678).

Predstavitev dopisnih članov

Presentation of Corresponding Members



Christophe Ballif

Vodja laboratorija za fotovoltaiko na EPFL, Švica

Head of Photovoltaic Laboratory at EPFL, Switzerland

Prof. Christophe Ballif je diplomiral kot fizik na EPFL, kjer je leta 1998 tudi doktoriral. Na EPFL sedaj vodi laboratorij za fotovoltaiko in je hkrati direktor odseka za fotovoltaiko na CSEM, kjer uspešno prenaša znanje v proizvodnjo in ustvarja nove aplikacije.

Zelo je prisoten tudi v švicarskih medijih, kjer deluje kot promotor za obnovljive vire in še posebej za sončno energijo in fotovoltaiko.

Prof. Ballif že več kot deset let uspešno sodeluje z LPVO na UL FE. V okviru evropskih projektov so sodelovali v 6. in v 7. okvirnem programu EU. Prof. Ballif je bil leta 2012 gostujoči profesor na UL FE in je predaval na temo fotovoltaike. Tesno sodelovanje je bortovalo skupni objavi devetih izvirnih znanstvenih člankov. Prof. Ballif je za vrhunske dosežke na področju fotovoltaike prejel najprestižnejšo evropsko nagrado za fotovoltaiko, Becquerel Prize 2016.

Professor Christophe Ballif graduated as a physicist at EPFL, where he also received his doctorate in 1998. At EPFL, he now runs a photovoltaic laboratory. At the same time, he is director of the photovoltaic department at CSEM, where he successfully transfers knowledge into production and creates new applications. He is also very present in the Swiss media, where he acts as a promoter for renewable energy, especially for solar power and photovoltaics.

Professor Ballif has been working successfully with LPVO at UL FE for more than ten years. Within the framework of European projects, they participated in the 6th and 7th EU Framework Programs. Prof. Ballif was a visiting professor at UL FE in 2012 and lectured on the topic of photovoltaics. The close collaboration led to the joint publication of nine original scientific articles. Professor Ballif received the most prestigious European photovoltaic award, the 2016 Becquerel Prize, for top achievements in the field of photovoltaics.



Børge Diderichsen

Podpredsednik, Novo Nordisk, in soustanovitelj družbe ScanBalt, Danska

Børge Diderichsen je svojo znanstveno kariero začel z diplomo iz biokemije ter doktoratom iz mikrobiologije na Univerzi v Copenhagnu. Kot raziskovalec in menedžer je deloval v Novo Nordisk in postal podpredsednik. Sedaj, ko je v pokoju, se ukvarja s strateškim svetovanjem na flamskem inštitutu za biotehnologijo (VIB), Belgija.

Bil je podpredsednik enote »Corporate Research Affairs« v Novo Nordisk. Je član belgijske akademije tehničnih znanosti. Bil je med ustanovitelji Medicon Valley Alliance. Pogosto je vodil ali bil član različnih delovnih skupin Evropske komisije.

Veliko in dolga leta je sodeloval s Slovenijo. Je eden od predlagateljev in sodelavcev Proteus projekta, ki poteka med Univerzo v Ljubljani, kitajskim inštitutom Beijing Genomics Institute – BGI ter Inštitutom za regenerativno medicino Lars Bolund (Aarhus, Danska in Qingdao, Kitajska)

Projekti, ki jih je Novo Nordisk financiral na UL BF – glive, ki delujejo v ekstremnih pogojih (visoka slanost, povišana temperaturna obstojnost), so pomembni organizmi za biotehnološko proizvodnjo zdravil.

Sodeloval oziroma svetoval je MIZŠ in ARRS pri politiki prenosa znanja.

Vice President, Novo Nordisk, co-founder of ScanBalt, Denmark

Børge Diderichsen began his scientific career with a degree in biochemistry and a doctorate in microbiology from the University of Copenhagen. As a researcher and manager, he worked at Novo Nordisk and became vice president. Now retired, he is engaged in strategic consulting at the Flemish Institute of Biotechnology (VIB), Belgium.

He was Vice President of the Corporate Research Affairs Unit in Novo Nordisk. He is a member of the Belgian Academy of Technical Sciences. He was among the founders of the Medicon Valley Alliance. He has often chaired or been a member of various European Commission working groups.

He cooperated with Slovenia for many and many years. He is one of the proponents and collaborators of the Proteus project, which takes place between the University of Ljubljana, the Chinese Institute Beijing Genomics Institute-BGI, and the Lars Bolund Institute for Regenerative Medicine (Aarhus, Denmark, and Qingdao, China)

Projects funded by Novo Nordisk at UL BF - fungi operating in extreme conditions (high salinity, increased temperature resistance) are important organisms for biotechnological drug production.

He is an advisor to the Ministry of Science, Education, and Sports in the policy of knowledge transfer.



Jean-Marie Dubois

*Zasluzni direktor Inštituta Jean Lamour
– CNRS, Francija*

*Honorary Director of the Jean Lamour
Institute - CNRS, France*

Jean-Marie Dubois, je zasluzni profesor CNRS in znanstveni svetnik Instituta Jožef Stefan. Njegova raziskovalna kariera je bila posvečena kompleksnim kovinskim zlitinam s posebnim poudarkom na kvazikristalih, kompleksnih zlitinah, magnetokaloričnih materialih in materialih za shranjevanje vodika. Bil je koordinator številnih evropskih projektov, ki so vključevali tudi IJS, in ustanovni direktor Inštituta Jean Lamour, Nancy.

Prof. Dubois je vitez zlatega reda Francoske Akademije Znanosti, častni član Instituta Jožef Stefan in dobitnik časnih doktoratov treh univerz v ZDA, Braziliji in na Kitajskem. Bil je nagrajen z več mednarodnimi nagradami, med katerimi je tudi nagrada Robert F. Mehl TMS Award in Fray Award. Je član Evropske akademije znanosti, Akademije Stanislas in Akademije znanosti Lorraine v Nancyju v Franciji, kateri tudi predseduje.

Prof. Dr. Jean-Marie Dubois, kot znanstveni koordinator »Evropske mreže odličnosti« NoE »Complex Metallic Alloys«, je bistveno prispeval k dodatni uveljavitvi in razpoznavnosti Instituta »Jožef Stefan« kot nosilca in organizatorja petletne Evropske šole.

Jean-Marie Dubois is an emeritus professor at the CNRS and a scientific advisor to the Jožef Stefan Institute (IJS). His research career has been dedicated to complex metal alloys with special emphasis on quasicrystals, complex alloys, magnetocaloric materials, and hydrogen storage materials. He has been the coordinator of a number of European projects, including the IJS, and was the founding director of the Jean Lamour Institute, Nancy.

Professor Dubois is a Knight of the Golden Order of the French Academy of Sciences, an honorary member of the Jožef Stefan Institute, and the recipient of honorary doctorates from three universities in the USA, Brazil, and China. He has been awarded several international prizes, such as the Robert F. Mehl TMS Award and the Fray Award. He is a member of the European Academy of Sciences, the Stanislas Academy, and the Lorraine Academy of Sciences in Nancy, France, which he also chairs.

Professor Jean-Marie Dubois, while he was the scientific coordinator of the “European Network of Excellence” NoE “Complex Metallic Alloys,” significantly contributed to the enhancement of the Jožef Stefan Institute’s reputation and its wider recognition as the holder and organizer of the five-year European School.



Boris Vladimirovič Gusev

*Predsednik Ruske inženirske akademije,
Rusija*

President of the Russian Academy of Engineering, Russia

Po diplomi iz železniškega inženirstva je nato še doktoriral na temo mehanika tal, podstavkov in temeljev. Znanstveno kariero je pričel na Univerzi v Dnepropetrovsku, kjer je bilo njegovo področje izboljšanje kakovosti armiranobetonskih konstrukcij za stanovanjsko gradnjo. Področje delovanja je razširil na raziskave trajnosti betona in postopkov vibriranja. Zaupana mu je bila naloga izgradnje novih objektov za olimpijske igre v Moskvi leta 1980, kasneje tudi izdelava novih vrst konstrukcij in razvoj novih tehnologij njihove izdelave, gradnja novih stanovanjskih četrti ter gradnja unikatnih zgradb in struktur, ki prispevajo k moskovski arhitekturi. Kasneje je prof. Gusev vodil enega najpomembnejših razvojnih programov armiranobetonskih konstrukcij v ZSSR in Rusiji.

Sodelovanje prof. Guseva s slovenskimi znanstveniki se je pričelo leta 1995, s Centrom za eksperimentalno mehaniko. Kot somentor je sodeloval pri več doktorskih študentih, ki so iz Rusije prišli na doktorski študij na Univerzo v Ljubljani.

Prof. Gusev je predsednik Ruske inženirske akademije, dopisni član Ruske akademije znanosti, častni znanstvenik Ruske federacije, dobitnik nagrad ruske vlade za znanost in izobraževanje.

After graduating in railway engineering, Professor Gusev received his doctorate in soil mechanics and foundations. He began his scientific career at the University of Dnepropetrovsk, where he focused on improving the quality of reinforced concrete structures for residential construction. He extended his area of activity to research into concrete durability and vibration processes. He was entrusted with building new facilities for the 1980 Olympic Games in Moscow, making new types of structures and developing new technologies for their manufacture, building new residential neighborhoods, and building unique buildings and structures that contribute to Moscow's architecture. Later, professor Gusev led one of the most important development programs of reinforced concrete structures in the USSR and Russia.

Professor Gusev's collaboration with Slovenian scientists began in 1995, with the Centre for Experimental Mechanics. As a co-supervisor, he participated in the education of several doctoral students who came from Russia to study for a doctorate at the University of Ljubljana.

Prof. Gusev is the President of the Russian Academy of Engineering, a corresponding member of the Russian Academy of Sciences, an honorary scientist of the Russian Federation, a recipient of the Russian Government Awards for Science and Education.



Thomas Heinze

*Profesor organske kemije na univerzi
Friedrich Schiller v Jeni, Nemčija*

*Professor of Organic Chemistry at the
Friedrich Schiller University of Jena,
Germany*

Prof. Thomas Heinze je študiral kemijo na Friedrich Schiller University Jena. Kasneje je kot profesor sodeloval na University of Wuppertal, Friedrich Schiller University, bil je ugledni profesor na Åbo Akademi University Turku in gostujuči profesor na University of Natural Resources and Life Sciences, na Dunaju.

Med drugim je bil programski vodja »Cellulose and Cellulose Derivatives« v Nemčiji, podpredsednik nadzornega odbora »Research Centre for Medical Technology and Biotechnology GmbH«, kurator Thuringian Institute of Textile and Plastics Research v Nemčiji, znanstveni svetovalec na Thuringian Institute of Textile and Plastics Research, znanstveni svetnik v različnih mednarodnih podjetjih.

Prejel je več nagrad, med katerimi so: 1990 Best PhD of the Friedrich Schiller University of Jena (Promotionspreis), 2010 Anselme Payen Award of the American Chemical Society, 2012 Dr. Edmund Thiele Denkmünze, Zellcheming Association, 2014 Thuringian Research Award (Ultrasensitive immuno-assays for emergency medicine based on nanostructured polymer membranes, product commercialized).

Redno sodeluje v projektih z Univerzo v Mariboru v okviru 6. in 7. okvirnega programa EU.

Prof. Thomas Heinze studied chemistry at Friedrich Schiller University, Jena. He later worked as a professor at the University of Wuppertal, Friedrich Schiller University, was a distinguished professor at Åbo Akademi University Turku, and a visiting professor at the University of Natural Resources and Life Sciences, Vienna.

Among other things, he was the program manager of Cellulose and Cellulose Derivatives in Germany, vice chairman of the supervisory board of the Research Center for Medical Technology and Biotechnology GmbH, curator of the Thuringian Institute of Textile and Plastics Research in Germany, and scientific advisor in various international companies.

He has received several awards, including the Best PhD at the Friedrich Schiller University of Jena (Promotionspreis, in 1990), the Anselme Payen Award of the American Chemical Society in 2010, the Dr Edmund Thiele Denkmünze, Zellcheming Association in 2012, and the Thuringian Research Award for Ultrasensitive immunoassays for emergency medicine based on nanostructured polymer membranes in 2014. He regularly participates in projects with the University of Maribor within EU Framework Programs.



Angus Kingon

Profesor inženirstva in podjetništva na Brown University, ZDA

Je raziskovalec na področju fizikalnih znanosti ter menedžmenta. Področja njegovih raziskav so piezoelektrična keramika, elektronska keramika in tanki sloji. Nekatere njegove raziskave so bile uporabljene v industriji, na primer vgrajene elektronske komponente so bile uporabljeni za minimaliziranje stroškov prenosnih telefonov pri Motorola. Registriral je 15 patentov. Prejel je veliko nagrad, med njimi Price Foundation Award as Innovative Entrepreneurship Educator. Je član Center for Innovation Management Studies in član American Ceramic Society. Poglobljeno se ukvarja s prenosom znanja iz raziskav na univerzah v uporabo v gospodarstvu. S Slovenijo sodeluje že dalj časa, in sicer prek Forumu Bled, sodeluje v stalni izmenjavi študentov (Brown skupina v Sloveniji), sodeluje z Instrumentation Technologies, z Institutom »Jožef Stefan« (izmenjava doktorandov, gostujučih profesorjev, skupno delo na piezo materialih) in podiplomsko šolo J. Stefana.

Professor of Engineering and Entrepreneurship at Brown University, USA

Prof. Kingon is a researcher in the field of physical sciences and management. The areas of his research are piezoelectric ceramics, electronic ceramics and thin films. Some of his research has been used in industry. For example, embedded electronic components have been used to minimize the cost of Motorola mobile phones. He has registered 15 patents. He has received many awards, including the Price Foundation Award as an Innovative Entrepreneurship Educator. He is a member of the Center for Innovation Management Studies and a member of the American Ceramic Society. He is deeply involved in the transfer of knowledge from research at universities for use in the economy. He has been cooperating with Slovenia for a long time, through the Bled Forum, participating in permanent student exchange (Brown group in Slovenia), cooperating with Instrumentation Technologies, the Jožef Stefan Institute (exchange of doctoral students, visiting professors, joint work on piezo materials) and the J. Stefan post-graduate school.



Yalin Lu

Direktor Nacionalnega laboratorija za sinhrotronsko sevanje

Director of National Synchrotron Radiation Laboratory of China (NSRL)

Profesor Lu je strokovnjak za fiziko snovi, kjer interdisciplinarno povezuje inženirstvo novih materialov z raziskavo njihovih fizikalnih lastnosti. Kot direktor nacionalnega inštituta, ki izvaja raziskave s sinhrotronom, je prepoznał tehnološko dovršenost izdelkov slovenskega podjetja KYMA Tehnologije in svetoval nakup ondulatorja te družbe.

V zadnjem letu njegov nacionalni inštitut razvija novi sinhrotron HALS (Hefei Advanced Light Source), ki bo sinhrotron četrte generacije z izjemno nizko emitanco. Pri slednjem je natanko krmiljenje pospeševalnika in še posebej elektronskega žarka še posebej pomembno.

Yalin Lu že nekaj let sodeluje s slovenskim podjetjem Cosylab na področju krmiljenja sinhrotronskega pospeševalnika. Zaradi projekta HALS je obiskal Slovenijo maja 2018 in se dogovoril za naslednje razvojne korake s podjetjem KYMA Tehnologije in Cosylab. HALS bo verjetno nekaj časa veljal celo za največji znanstveni infrastrukturni projekt na Kitajskem, z vidnim slovenskim prispevkom.

Professor Lu is an expert in the physics of matter, where he connects the engineering of new materials with the research of their physical properties in an interdisciplinary manner. As the director of the National Synchrotron Radiation Institute, he recognized the technical excellence of the products of the Slovenian company KYMA Tehnologije. He advised the purchase of this company's undulator for use in the NSRL.

Recently, the National Synchrotron Radiation Laboratory has engaged in developing a new HALS (Hefei Advanced Light Source) synchrotron, which will be a fourth-generation synchrotron with extremely low emissions. In this project, precise control of the accelerator and especially the electron beam is essential. In this field of research and development, Yalin Lu has been collaborating with the Slovenian company Cosylab. Lu has visited Slovenia many times in connection with the HALS project and agreed on the next development steps with KYMA Tehnologije and Cosylab. In the following years, HALS will probably be considered the most extensive scientific infrastructure project in China, with a visible Slovenian contribution.



Nava Setter

Profesorica za znanost in inženirstvo materialov EPFL, Lausanne, Švica

Nava Setter je po doktoratu na Pennsylvania State University (1980) in podoktorskih izpopolnjevanjih v Oxfordu in Univerzi v Ženevi leta 1989 postala vodja Laboratorijsa za keramiko in profesorica materialov v Swiss Federal Institute of Technology Lausanne (EPFL). Od leta 2016 je zaslužna profesorica EPFL in gostujuča profesorica na Univerzi v Tel Avivu, Izrael.

Raziskovala je ferroelektrično in piezoelektrično keramiko s poudarkom na povezavi med strukturo in lastnostmi in novimi možnostmi uporabe teh materialov. Objavila je okrog 500 člankov, ima okrog 20.000 citatov in H-indeks 71. Za svoje delo je prejela vrsto nagrad, med drugim nagrado IEEE za področje ferroelektrikov. Je častna članica (»Fellow«) Švicarske akademije tehniških ved, zveze IEEE in Svetovne akademije keramike.

Dolgoletno sodelovanje s prof. Marijo Kosec z Odseka za Elektronsko keramiko Instituta Jožef Stefan je omogočilo mnogim študentom obiske v skupini prof. Setter, potekalo pa je tudi v okviru vrste evropskih projektov.

Professor of Materials Science and Engineering EPFL, Lausanne, Switzerland

After a PhD from Pennsylvania State University (1980) and postdoctoral training at Oxford University and the University of Geneva, Nava Setter became Head of the Ceramics Laboratory and Professor of Materials at the Swiss Federal Institute of Technology Lausanne (EPFL) in 1989. Since 2016, she has been an emeritus professor at EPFL and a visiting professor at Tel Aviv University, Israel.

She researched ferroelectric and piezoelectric ceramics, emphasizing the connection between structure and properties and the new possibilities of using these materials. She has published around 500 articles, has around 20,000 citations, and an H-index of 71. She has received many awards for her work, including the IEEE Award for Ferroelectrics. She is a Fellow of the Swiss Academy of Engineering, the IEEE, and the World Academy of Ceramics.

Long-term cooperation with Professor Marija Kosec from the Department of Electronic Ceramics of the Jožef Stefan Institute enabled many students to visit Professor Setter's group and has also taken place as part of a series of European projects.



Yuntao Song

Direktor Inštituta za fiziko plazme pri Kitajski akademiji znanosti

Profesor Song je doktor znanosti na področju fuzije. Kot član raznih odborov v ITER je sledil delu in podpiral vključevanje slovenskih strokovnjakov pri projektu največjega preskusnega fizijskega reaktorja na svetu, ITER. Kot vodja inženirskega dela razvoja kitajskega pre-skusnega reaktorja za fizijski inženiring je že v zgodnji fazi pritegnil k sodelovanju inženirje iz slovenskega podjetja Cosylab, zlasti pri razvoju krmiljenja naprav in plazme ter testnih sistemov.

Zadnja leta usmerja čedalje več svojega raziskovalnega časa v protonsko terapijo raka. Vrhunec sodelovanja prof. Songa s Slovenijo je načrtovanje in izgradnja kitajskega sistema za protonsko terapijo rakastih obolenj. Slovenski in kitajski raziskovalci in inženirji zdaj sodelujejo pri razvoju in integraciji programske opreme za celotni sistem, od krmiljenja pospeševalnika do sistema za vodenje zdravljenja.

Skupaj z Odsekom za reaktorsko fiziko na IJS je prof. Song prijavil kitajsko-slovenski raziskovalni projekt z nazivom »Raziskave ključnih področij superprevodnih ciklotronskih sistemov za protonsko terapijo«. Kot edini partnerji pri sodelovanju glede protonске terapije, fuzije in fisije so v uradnem zapisniku srečanja znanstvenih ministrstev Kitajske in Slovenije izrecno omenjeni Inštitut za fiziko plazme Kitajske akademije znanost (ASIPP), Inštitut Jožef Stefan in Cosylab.

Director of the Institute of Plasma Physics at the Chinese Academy of Sciences

Professor Song Yuntao is a Doctor of Science in Fusion and Director General of the Plasma Physics Institute of the Chinese Academy of Sciences (ASIPP). He has actively supported Slovenian experts' engagement in ITER, the project aimed to construct the largest test fusion reactor in the world. As Head of Development Engineering at CFETR (China Fusion Engineering Test Reactor), he involved the Slovenian company Cosylab early in developing plasma control and test systems.

In recent years, Professor Song has focused his research on proton cancer therapy—the culmination of his cooperation with Slovenia is the design and construction of the Chinese system for proton cancer therapy. Slovenian and Chinese researchers and engineers are now involved in developing and integrating software for the entire system, from accelerator control to the treatment management system.

With the Department of Reactor Physics at Jožef Stefan Institute, he submitted a Sino-Slovenian research project "Research in key areas of superconducting cyclotron systems for proton therapy." The Institute of Plasma Physics of the Chinese Academy of Sciences (ASIPP), the Jožef Stefan Institute, and Cosylab are explicitly mentioned in the official minutes of the meeting between the Ministries of Science of China and Slovenia as the only partners in cooperation on proton therapy, fusion, and fission.

