中华人民共和国驻罗马尼亚大使馆
Ambasada Republicii Populare Chineze în România

Universitatea Politehnica Timișoara

Physics in Use Toward a Shared Digital Future

3rd Edition of the Romania – China Bilateral Academic Forum
Romanian Academy – China Academies of Sciences
Scientific Relations between Romania and China

4th of November

09:00 - 17:00
Grand Senate Hall
UPT Rectorate building
Victory Square 2, Timișoara

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Registrations

4th of November

9:00 am Conference registration

9:30 am Welcome & Opening Remarks

Academician Marius ANDRUH President of the Romanian Academy and Professor at the University of Bucharest

H.E. Mr. CHEN Feng, Ambassador Extraordinary and Plenipotentiary of the People's Republic of China to Romania

Assoc. Prof. Dr. Eng. Florin DRĂGAN, Rector of Politehnica University Timișoara

Other officials

10:00 am Official Group Photo & Coffee

10:30 am Prof.dr. eng. Radu PRECUP -UPT
Intelligent Control for Sustainable Electric Mobility: Romania-China Cooperation in the e-MATS Project

11:00 am Acad. Prof. WU Zhiqiang - Chinese Academy of Engineering
Connecting Global Engineering Intelligence for a Shared Urban Digital Future

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11:30 am	Prof. Cristian CALUDE, University of Auckland, New Zealand (Online) N-Dimensional Located Kochen-Specker Theorem and Quantum Random Number Generation
12:00 pm	Prof. dr.MENG Jie - Peking University Theoretical Perspective for New Facilities with Rare Isotope Beams
12:30 pm	Dr. HU Mengjun - Beijing Academy of Quantum Information Sciences QUAFU Quantum Cloud Platform, Compilation System & Application Software
13:00 pm	Lunch Break
14:30 pm	Prof.dr.eng. Viorel UNGUREANU – UPT From Real Structures to Digital Engineering: Enabling Sustainable and Circular Steel Structures
15:00 am	Prof.dr.eng. Calin UR ELI-NP ELI-NP - From Fundamental Research to Applications
15:30 am	Prof.dr.SONG Hengxu - the Institute of Mechanics, Chinese Academy of Sciences Machine learning approaches for contact mechanics of rough surfaces
16:00 pm	Prof.dr.eng. Liviu MARSAVINA - UPT Bio-Inspired Structures for Better Integrity and Durability
16:30 pm	Dr GAO Dapeng - the Institute of Mechanics, Chinese Academy of Sciences Overview of the Institute of Mechanics, CAS and the Initiative for Establishing an International Very-Low-Earth-Orbit (VLEO) Cooperation Alliance



Prof. Dr. Eng. Radu-Emil PRECUP

Politehnica University of Timişoara

Intelligent Control for Sustainable Electric Mobility: Romania-China Cooperation in the e-MATS Project

Radu-Emil Precup is a Professor at Politehnica University of Timişoara (UPT), Romania, and a Senior Researcher and Head of the Data Science and Engineering Laboratory of the Center for Fundamental and Advanced Technical Research, Romanian Academy, Timişoara Branch. He is an IEEE Fellow, recognized for contributions to fuzzy and data-driven control of servo systems, and a corresponding member of the Romanian Academy.

His research focuses on intelligent control, fuzzy systems, data-driven controller tuning and optimization, with applications in mechatronics, robotics and transportation. He combines control-theoretic analysis with computational intelligence and experimental validation. He coordinates UPT's contribution to the e-MATS project, supporting international cooperation on sustainable electric mobility, including partnerships with Chinese research teams.

He is Editor-in-Chief of the Romanian Journal of Information Science and Technology. His distinctions include membership of the US National Academy of Artificial Intelligence (NAAI), fellowship of the International Academy of Artificial Intelligence Sciences, Doctor Honoris Causa titles from Óbuda University and Széchenyi István University, the Elsevier Scopus Award for Excellence in Global Contribution, and prizes from the Romanian Academy for contributions to control and optimization.



Acad. Prof. WU Zhiqiang

Tongji University, Shanghai · Chinese Academy of Engineering

Connecting Global Engineering Intelligence for a Shared Urban Digital Future

Prof. Dr. WU Siegfried Zhiqiang is a Professor of Urban and Rural Planning at Tongji University, Shanghai, China. He is a Member of the Chinese Academy of Engineering, the German National Academy of Science and Engineering (acatech) and the Royal Swedish Academy of Engineering Sciences (IVA), as well as an Honorary Fellow of the American Institute of Architects. He serves as Editor-in-Chief of Urban Planning Forum and Vice Chair of the Communication Committee of the International Council of Academies of Engineering and Technological Sciences (CAETS).

His research focuses on urban development and urbanization theory, intelligent methods for urban planning and design, and policies for sustainable urban and rural development. He served as Chief Planner of Expo 2010 Shanghai China, the 2014 Qingdao International Horticultural Exposition, and the comprehensive urban design plan for the Beijing Municipal Administrative Center. His prominent academic contributions include research on intelligent city evaluation systems, AI-assisted planning, sustainable urbanization and territorial spatial planning. His major publications include ***Intelligent City Evaluation System***, ***Principles of Territorial Spatial Planning***, ***Intelligent Governance*** and ***Urban Planning Methods***.

Professor Wu has received significant honors, including the National May 1 Labour Medal, the National Advanced Worker Award, the National Innovation Excellence Award, the title of National Master of Engineering Survey, Planning and Design, and the Order of Merit of Technische Universität Berlin.



Prof. Cristian CALUDE

University of Auckland, New Zealand (online)

N-Dimensional Located Kochen-Specker Theorem and Quantum Random Number Generation

Cristian Calude studied at the University of Bucharest between 1971 and 1975, under the mentorship of Gr. C. Moisil and S. Marcus, and received his PhD in 1976 with S. Marcus as adviser. He was a researcher at the University of Bucharest from 1975 to 1992 and a professor there from 1993 to 2000. Since 1993 he has been Chair Professor at the University of Auckland, with research in theoretical computer science (computability and complexity) and quantum theory (quantum computing and quantum randomness).

He is the author or co-author of 300 refereed articles, 12 books, 39 edited books and 4 US patents. His work has been cited in more than 9,000 articles and 120 books by 550 authors, including Nobel laureates R. Penrose and A. Zeilinger and Turing laureates D. E. Knuth and J. Sifakis, and has been featured in science magazines including New Scientist, Pour La Science, Innovate and Quanta Magazine. He has advised 96 graduate students, now professors or researchers around the world; among them, Dr. S. Legg is one of the founders of Google DeepMind.

He has been a visiting professor at 30 universities, including École Normale Supérieure in Paris and the Universities of Oxford, Cambridge and Chicago. He was elected a member of the Academia Europaea in 2008 and of Sigma Xi in 2024. His awards include the G. Lazăr Mathematical Prize of the Romanian Academy (1988), the STOC Best Paper Award (2017) and the EATCS-IPEC Nerode Prize (2021). In 2019 he was awarded the National Order in the rank of Knight by the President of Romania.



Prof. Dr. MENG Jie

School of Physics, Peking University

Theoretical Perspective for New Facilities with Rare Isotope Beams

Professor MENG Jie, School of Physics, Peking University, and Cheung Kong Professor of the Ministry of Education, has long been engaged in research in nuclear physics and nuclear astrophysics. He has made seminal contributions to the establishment of relativistic density functional theory for novel nuclear phenomena and to chiral symmetry in atomic nuclei.

He has to his credit more than 520 publications, including 22 in Physical Review Letters and 41 in Physics Letters B, with more than 34,000 citations and an h-index of 96 (Google Scholar).

He has been recognized internationally with many awards and honors, including the Humboldt Research Award (2022), the GENCO Membership Award (2010), the Asian Achievement Award from the Overseas Chinese Physics Association (2009), the Khwarizmi International Award, Iran (2008), and the Wu Youxun Physics Award from the Chinese Physical Society (2006). He was elected Fellow of the American Physical Society in 2012 and Foreign Member of the Academia Europaea in 2018.



Dr. HU Mengjun

Beijing Academy of Quantum Information Sciences

QUAFU Quantum Cloud Platform, Compilation System & Application Software

HU Mengjun is a BAAI Young Scholar and Project Leader of the Ministry of Science and Technology International Cooperation Key R&D Program. He received his PhD in Quantum Physics from the University of Science and Technology of China (USTC) in 2018. He then joined Huawei Technologies' Central Research Institute as a Senior Researcher, working on quantum computing algorithm and software development. In March 2021 he joined the Beijing Academy of Quantum Information Sciences (BAQIS) as an Assistant Researcher in the Quantum Operating System Software Team, and was promoted to Associate Research Fellow in July 2024.

His research focuses on quantum compilation and quantum software systems, quantum reinforcement learning and quantum cloud platform applications. At BAQIS he plays a leading role in the development of QSteed, a resource-virtualized and hardware-aware quantum compilation framework deployed on the Quafu superconducting quantum cloud platform, as well as Quafu-RL and PPO-Q, which execute benchmark quantum reinforcement learning tasks on real quantum processors of up to 136 qubits. He also leads the development of Quafu-Qcover, an open-source package for combinatorial optimization with direct hardware access on Quafu.



Prof. Dr. Eng. Viorel UNGUREANU

Politehnica University of Timișoara

From Real Structures to Digital Engineering: Enabling Sustainable and Circular Steel Structures

Daniel-Viorel Ungureanu is Professor of Steel Structures in the Department of Steel Structures and Structural Mechanics, Faculty of Civil Engineering, Politehnica University of Timișoara, and Senior Researcher at the Laboratory of Steel Structures of the Romanian Academy, Timișoara Branch. He teaches at undergraduate and postgraduate levels and supervises PhD students.

His research focuses on structural engineering, with particular expertise in steel structural members and systems, cold-formed steel structures, structural analysis and stability, numerical modelling, sustainable constructions and circular economy in the built environment.

He is Editor-in-Chief of ***Steel Construction: Design and Research***, a Wiley journal, Chair of ECCS Technical Committee TC14 Sustainability and Eco-Efficiency of Steel Construction, and a member of ECCS Technical Committee TC7 Cold-Formed Thin-Walled Sheet Steel in Buildings. He is also a corresponding member of the Academy of Technical Sciences of Romania (ASTR).



Prof. Dr. Eng. Călin-Alexandru UR

Extreme Light Infrastructure Nuclear Physics (ELI-NP), IFIN-HH

ELI-NP - From Fundamental Research to Applications

Education. PhD in Nuclear Physics (1999), Institute of Atomic Physics, Bucharest; Diploma in Physics Engineering (1990), Faculty of Physics, University of Bucharest.

Professional experience. Associate Professor at the National University of Science and Technology POLITEHNICA Bucharest (since 2023); Senior Researcher at ELI-NP, IFIN-HH (since 2013); Researcher at Istituto Nazionale di Fisica Nucleare, Sezione di Padova, Italy (2000–2013); Researcher at the National Institute for Physics and Nuclear Engineering, Romania (1990–2000); research fellowship at INFN Padova (1996–1997).

Management. Director of ELI-NP (since 2020); Technical Director of ELI-NP (2019–2020); Director of the PhD School of Engineering and Applications of Lasers and Accelerators, POLITEHNICA Bucharest (since 2015); Head of Research Activity 2 “High Brilliance Gamma Beam”, ELI-NP (2014–2018).

Publications. Co-author of more than 450 papers in journals indexed in ISI Web of Science and more than 150 papers in conference proceedings.

Fields of interest. Experimental study of nuclear structure and nuclear reactions; high resolution gamma-ray and particle spectroscopy; nuclear lifetime measurements; mass spectrometry; data acquisition systems; gamma beam systems, monitoring and diagnostics; industrial and medical applications of gamma beams and high-power lasers.

Memberships. Advisory Board for Research, Development and Innovation (CCCDI), National Authority for Research, Romania (since 2025); Nuclear Physics European Collaboration Committee, NuPECC (since 2023); Chair (2020–2021) and member (2018–2020) of the Program Advisory Committee B-PAC of the Research Centre for Nuclear Physics (RCNP), Osaka University, Japan; Editorial Board of the European Physical Journal A (2018–2024); Board of Directors of the Euroschool on Exotic Beams (since 2017); Scientific Committee of the Nuclear Spectroscopy Instrumentation Network, FP7 ENSAR2 (2016–2020); Editorial Board of NuPECC (2016–2020); Nuclear Physics Board of the European Physical Society and EPS Observer in NuPECC (2015–2020); member of the European Physical Society and of the Romanian Physical Society (since 2014).



Prof. Dr. SONG Hengxu

Institute of Mechanics, Chinese Academy of Sciences

Machine learning approaches for contact mechanics of rough surfaces

SONG Hengxu is a Professor at the Institute of Mechanics, Chinese Academy of Sciences (CAS), Deputy Director of the State Key Laboratory of Nonlinear Mechanics, and Head of the Division of Surface and Interface Mechanics and Equipment Reliability. He has been selected for a national young talent program. His research focuses on multiscale plasticity, contact and friction mechanics, materials data science, and the mechanics of manufacturing processes for large structures.

He has served as principal investigator on projects supported by national young talent programs, National Science and Technology Major Projects, the CAS Strategic Priority Research Program (Category B), defense research funds and industry. He has published more than 60 papers in journals including Physical Review Letters, Journal of the Mechanics and Physics of Solids, International Journal of Plasticity, International Journal of Solids and Structures and Tribology International.

He serves as a member of the Academic Degrees Committee of the Institute of Mechanics, CAS, Vice Chair of the Solid Mechanics Committee of the Beijing Society of Theoretical and Applied Mechanics, and a young editorial board member of journals including Applied Mathematics and Mechanics and Deep Resources Engineering.



Prof. Dr. Eng. Liviu MARSAVINA

Politehnica University of Timișoara · Corresponding Member of the Romanian Academy

Bio-Inspired Structures for Better Integrity and Durability

Prof. Liviu Marsavina is Vice Rector for Research, Innovation and Technological Transfer at Politehnica University of Timișoara, Romania, and a corresponding member of the Romanian Academy. He is full professor of Strength of Materials and Fracture Mechanics at UPT. His main research interests lie in mechanics of materials, fracture mechanics, and structural integrity and durability applied to different materials and structures.

A PhD supervisor since 2007, he has coordinated 19 PhD students and more than 40 master's theses.

Since 2026 he has been President of the European Structural Integrity Society (ESIS), after eight years as Vice President. Since 2020 he has been an Honorary Member of the Italian Group of Fracture (IGF) and an ESIS Fellow. In 2021 he received the "Paolo Lazzarin" medal from IGF. He holds the title of Doctor Honoris Causa of the Technical University of Cluj-Napoca and has been an Honorary Member of the Academy of Technical Sciences of Romania since 2024.

Abstract

Bio-inspired structures for enhanced integrity and durability draw inspiration from natural systems that have evolved optimized forms, materials and design philosophies over millions of years. These structures aim to improve robustness by employing mechanisms such as compartmentalization and complexity, which help localize damage and prevent catastrophic failure, improving overall structural resilience.

Bio-inspired lattice structures show better energy efficiency and relative strength compared with classical lattice structures. The investigations were carried out experimentally, numerically and analytically.



Dr. GAO Dapeng

Institute of Mechanics, Chinese Academy of Sciences

Overview of the Institute of Mechanics, CAS and the Initiative for Establishing an International Very-Low-Earth-Orbit (VLEO) Cooperation Alliance

Dapeng Gao is Division Chief of the Science and Technology Office, Institute of Mechanics, Chinese Academy of Sciences. He received his PhD in Geology from Peking University in 2016, focusing on seepage mechanics in porous media. He is experienced in managing major research programs and international and Hong Kong and Macao collaborative projects, and is a core initiator of the Ultra-Low Orbit Technology Innovation and Industrial Development Alliance.

He systematically investigated seepage mechanisms of porous media for unconventional oil and gas, mastering numerical methods for adsorption, diffusion and multi-field coupling, and extending seepage dynamics to mass transfer in the rarefied atmosphere at ultra-low orbits. He has led and participated in over 20 research projects, published more than 40 papers, obtained 10 authorized patents and contributed to 3 industrial standards. His awards include the Gold Prize of the National Invention Exhibition and the First Prize of the Provincial Science and Technology Progress Award.

Since 2023 Dr. Gao has headed the Science and Technology Division. He coordinates cross-institutional innovation and led the development of three national and Beijing key laboratories. He has organized seven major international conferences and established partnerships with Hong Kong Polytechnic University, the University of Warwick and other institutes abroad. He led the successful application for the Beijing International Cooperation Base, and is proficient in collaborative mechanisms for cross-border joint laboratories, covering personnel exchange, remote data sharing, joint IP ownership and benefit distribution.

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Thank you

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Organized by
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Embassy of the People's Republic of China in Romania
Politehnica University of Timișoara