

Professor Zoran Ren

Professor of Mechanical Engineering, University of Maribor, Slovenia
Head of the Laboratory for Advanced Computational Engineering and Experimenting (LACE-X)

Professor Zoran Ren is a Full Professor of Mechanical Engineering at the University of Maribor, Slovenia, where he heads the Laboratory for Advanced Computational Engineering and Experimenting (LACE-X). He received his B.Sc. and M.Sc. degrees in Mechanical Engineering from the University of Maribor and his Ph.D. in Advanced Computational Engineering from Swansea University, United Kingdom, in 1993.

His research focuses on **computational solid mechanics, impact mechanics, high-strain-rate behaviour of materials, and the design and characterisation of advanced cellular and multifunctional materials**.

A central theme of his research is the development of cellular metamaterials with tailored mechanical response for impact mitigation and energy absorption. His work combines advanced nonlinear finite-element simulations, high-performance computing, geometrical characterisation, experimental testing under quasi-static and dynamic loading, and optimisation of cellular architectures.

Professor Ren is the head of the Slovenian national research programme **P2-0063 “Design of Cellular Structures”**. His research encompasses metallic foams, unidirectional porous metals, auxetic and chiral cellular structures, graded metamaterials, hybrid cellular systems, and, more recently, architected materials based on triply periodic minimal surfaces. Particular attention is devoted to their deformation and failure mechanisms under high strain rates and high-velocity impact.

He has maintained a close research collaboration with **Kumamoto University since 2006**, particularly in the fields of high-energy-rate material processing, porous and cellular metals, and their behaviour under extreme dynamic loading. Joint research with colleagues at Kumamoto has included the explosive fabrication and compaction of unidirectional porous metals, experimental and computational investigations of cellular materials under high-velocity impact, and the characterisation of auxetic structures at high strain rates. This long-standing collaboration has resulted in numerous joint scientific publications and continuing researcher and student exchanges.

Professor Ren has authored or co-authored **more than 140 papers in international scientific journals and more than 300 conference papers**, and is an inventor or co-inventor of **six patents**. Among these is the recently granted European patent for an **axisymmetric chiral auxetic structure**. He has participated in extensive international academic and industrial research collaborations and has completed numerous fundamental, international and industry-funded research projects.

His international academic experience includes an **Alexander von Humboldt Research Fellowship at Friedrich-Alexander University Erlangen-Nürnberg, Germany**, as well as long-term collaborations with universities and research institutions in Japan, the United Kingdom, Germany, Portugal, Croatia, China, Korea, the United States, Australia and other countries.

In addition to his research activities, Professor Ren served as **Vice-Rector for Science and Research of the University of Maribor from 2018 to 2022** and has been **Head of the Doctoral School of the University of Maribor since 2023**. He currently also serves as **President of the Management Board of the Slovenian Research and Innovation Agency (ARIS)**.

