IVANA KOVACIC

Ivana Kovacic has been a Full Member of the Serbian Academy of Nonlinear Sciences since 12 April 2023. She is a Full Professor of Mechanics at the Faculty of Technical Sciences, University of Novi Sad, Serbia. She got her undergraduate degree in Mechanical Engineering in Mechanics and Mechanical Design at the Faculty of Technical Sciences of the University of Novi Sad. She got her Master and PhD degrees in Mechanics/Theory of Vibration at the same faculty. She has passed through all the academic titles at the same faculty, starting from a Teaching Assistant to a Full Professor, which is a position she gained in 2014. During her MSc studies, she was a fellow of the Ministry of Science of the Republic of Serbia. He was also a recipient of a scholarship from the Ministry of Science of the Republic of Serbia for her postdoctoral education in the Institute of Sound and Vibrations (ISVR) of the University of Southampton, United Kingdom. She has been a Visiting Professor at three universities in the UK: University of Southampton (2007–2011), University of Sheffield (2013–2016) and University of Strathclyde in Glasgow (2017–2019). Since 2014, she has been an honorary foreign member of the Academy of Sciences and Arts of the Marche, Italy. She is the Head of the Center for Vibro-Acoustic Systems and Signal Processing CEVAS at the Faculty of Technical Sciences, which has the status of a center of excellence, obtained from the National Council for Scientific and Technological Development of the Republic of Serbia twice: in 2015 and 2020.

Research Interests: Her research involves the use of quantitative and qualitative methods to study differential equations arising from nonlinear dynamics problems mainly in mechanical engineering. Besides this, among special interests are the application of special functions for quantitative studies of nonlinear oscillators, non-holonomic mechanics, conservation laws and adiabatic invariants. Projects conducted have addressed purely nonlinear oscillators, asymmetric forced Duffing equations, elliptic Mathieu equations, Mathieu-Duffing equations, nonlinear equations of motion with slowly varying parameters, purely nonlinear bistable oscillators, isochronous oscillators, and dynamics of coupled oscillators. Recent interests also encompass tree vibrations, biomimetics, metastructures and experimental noise and vibration.

Scientific Results: Ivana Kovacic has published more than 80 papers in the best relevant scientific journals (she is the first or sole author in 70% of them). She has published three scientific monographs/books in English by John Wiley & Sons and Springer as the author/editor, as well as 11 chapters in English, mostly by the same publishers. She is the editor and one of the authors of the bilingual Serbian-English dictionary of terms in the field of vibro-acoustics. She presented her results as a regular participant or introductory/keynote lecturer at numerous conferences and universities in Serbia and abroad (Belgrade, Novi Sad, Nis, Lisbon, Porto, Lublin, Glasgow, Darmstadt, Frankfurt, Freiburg, Rome, Ancona, Venice, Vienna, Bratislava, Paris, Krakow, Timisoara, Portland, Blacksburg, Cornell-Ithaka, Rio de Janeiro, Agadir, Beijing, Marrakech, etc.). She has also been engaged as a member of Scientific and Organizing Committees of numerous international conferences in Serbia and abroad (Novi Sad, Porto, Agadir, Rome, Timisoara, Lodz, Lisbon, Darmstadt, Glasgow, Louvain, Southampton, etc.). She organized the very first ever Symposium of the International Union of Theoretical

and Applied Mechanics IUTAM in Serbia in 2018, entitled 'Exploiting Nonlinear Dynamics for Engineering Systems'. She has participated in 24 projects and led 8 of them, which includes international projects financed by the European Commission and industry. She is a member of the Serbian Society for Computational Mechanics, the Serbian Society for Mechanics, the International Society for Nonlinear Dynamics NODYS, the European Association for Structural Dynamics and the European Society for Mechanics EUROMECH.

Response to Research Results: According to Google Scholar, the number of her citations is 4139 with the h-index=22, while SCOPUS identifies 3197 citations with the h-index=20 (both databases were accessed on 23 April 2023). Ivana Kovacic is the Deputy Editor-in-Chief of the Journal of Sound and Vibration (Elsevier) - the best scientific journal in her scientific field. She has also been the Editor for Nonlinear Oscillations in Journal of Sound and Vibration (Elsevier), Mechanics Research Communication (Elsevier), European Journal of Mechanics A - Solids (Elsevier), Meccanica (Springer), Journal of Mechanical Engineering Science, Part C (SAGE). She is also a member of the Editorial Board of the Journal of the Serbian Society for Computational Mechanics. She has been a reviewer for more than 25 scientific journals from the fields of nonlinear dynamics, nonlinear oscillations, mechanics and applied mathematics. She has been included three times so far into the Rank List of the 2% most cited scientists in the world made by Stanford University, USA.

Educational Activities: During her career at the Faculty of Technical Sciences, she has been lecturing Mechanics at the following bachelor academic programmes: mechanical engineering, civil engineering, graphic engineering and design, electrical engineering, architecture, traffic engineering, industrial engineering and management. She is also the creator and the Head of the first accredited national master academic studies in Vibro-Acoustic Engineering at the University of Novi Sad, which have been implemented at the University Center for Interdisciplinary and Multidisciplinary Studies UCIMSI. The first generation of these students was enrolled in 2021/22, and the Republic of Serbia has already got the first master engineer in Vibro-Acoustic Engineering, whose supervisor was Professor Kovacic. She was the supervisor of a PhD student at the Faculty of Technical Sciences who is a full professor in Mechanics at the same faculty now. In addition, she has been a supervisor of PhD students in the UK (3) and Italy (1), and is currently supervising PhD students in Serbia (2), the UK (1) and China (1). Ivana Kovacic was a lecturer at the summer doctoral schools in Croatia, Italy and China.

List of 5 Selected Research Publications:
1. Kovacic I., Nonlinear Oscillations: Exact Solutions and their Approximations, Springer, 2020.
2. Kovacic I., Zukovic M., Radomirovic D., On a localization phenomenon in two types of bio-inspired hierarchically organised oscillatory systems, Nonlinear Dynamics, 2020, Vol. 99, pp. 679–706.
3. Kovacic I., Rand R., Sah Si M., Mathieu's equation and its generalizations: overview of stability charts and their features, Applied Mechanics Reviews, 2018, Vol. 70 (2), Art. No. 020802.
4. Kovacic I., On some performance characteristics of base excited oscillatory systems with a purely nonlinear restoring force, International Journal of Nonlinear Mechanics, 2014, Vol. 65, pp. 44-52.
5. Kovacic I., Brennan M. J. (Eds.), The Duffing Equation: Nonlinear Oscillators and their Behaviour, John Wiley and Sons, 2011.

Link to more detailed results: https://www.ivanakovacic.rs/