



LIVIJA (PINTER) CVETICANIN

Born on April 7, 1952 in Senta, where she attended primary school and gymnasium. She received her diploma-engineer from Faculty of Mechanical Engineering, University of Novi Sad, Serbia. She finished her magister studies at the Department of Mechanics and Astronomy of the Faculty of Natural Sciences, University of Belgrade, in 1977. She got her PhD at the Faculty of Technical Sciences, University of Novi Sad in 1981. In 2014 she obtained the Doctor Degree from the Hungarian Academy of Sciences in Budapest, Hungary. Since 1975 she is employed at the Faculty of Technical Sciences, University of Novi Sad. In 1991 she is elected to full-time professor in Theory of Mechanisms and Machines and in 1994 to full-time professor in Mechanics. In 2016 she was elected in full-time professor at the Obuda University in

Budapest, Hungary. Since 2020 she is the Professor Honoris Causa at the Politechnica University Timisoara (Romania) and since 2022 at the University of Szeged (Hungary). In 2022 Dr. Cveticanin was elected in Professor Emeritus at the Obuda University in Budapest, and in 2023 at the University of Novi Sad. She is the member of Serbian Academy of Nonlinear Sciences, Academy of Sciences and Arts of Vojvodina, Engineering Academy of Serbia, Serb Scientific Society, Engineering Academy of Hungary and the added member of the Hungarian Academy of Sciences. She talks fluently Hungarian and English language and uses the German language.

Research Interests: The research fields of interest of Dr Cveticanin are: dynamics of machines and mechanisms with constant and time variable mass and also nonlinear vibrations. She introduced the complex functions for analysis of rotor dynamics. In dynamics of rotors with variable mass she investigated the influence of the reactive force as a special excitation caused by variation of the system mass in time. She developed a few approximate analytic procedures for solving nonlinear vibrations. The most accurate method is based on the Ateb function which is the inverse beta function.

Scientific Results: Up to the end of 2022 she published more than 450 peer reviewed research publications, including 7 monographs M11 published by Springer and Gordon & Breach, 6 chapters in monograph books M13 and 6 papers in thematic books M17. She published 211 papers: 17 in national and 194 in international research journals M20. 93 papers are of the class M21, 45 in class M22, 29 in class M23 and 27 in class M24. In majority of these publications Dr Cveticanin is the principal author. She was the plenary speaker at 13 international and 4 domestic conferences. She presented 93 talks at international and 66 domestic conferences and 116 of them are published in corresponding Proceedings.

Response to Research Results: According to Google Scholar Dr Cveticanin had been cited more than 3500 times, with an h-index of 33 and i10-index 96. Dr Cveticanin has been the editor of a significant number of journals, including *Mechanism and Machine Theory* (M21), *Romanian Journal of Mechanics* and *Matica Srpska Journal for Natural Sciences*. She is the Editor in Chief of the international journal *Analecta Technica Szegedinensia*. She is the reviewer of a significant number of journals, including *Journal of Sound and Vibration*, *Communication in Nonlinear Science and Numerical Simulation*, *Acta Mechanica* etc. She is for the second time (in 2019 for publications and citations up to 2018, and in 2021 for

publications and citations up to 2020) incorporated into the *Rank List of the most 2% most important scientist based on whole-life production* in the world made by Stanford University, USA. In addition, she is ranked in the same list according to one year scientific production in 2020. In 2011 she obtained the *Thompson Reuters Award* as the author of the most often cited one-author paper in Serbia (the paper is ranked as 1% most cited one in Physics for 2006).

Educational activities: She gave lectures in two groups of subjects: in Mechanics and in Theory of Machines and Mechanisms at all levels (bachelors, master and PhD) at all Departments of the Faculty of Technical Sciences: at mechanical, civil, traffic, graphic engineering, and also industrial systems. She was included in education at Agricultural Faculty and the Faculty of Technology, University of Novi Sad, but also at the Faculty of Mechanical Engineering in Eastern Sarajevo (2000-2005). She was the supervisor of 6 PhD theses, 6 magister theses, and more than 50 bachelors and master works. She was the head or member of commission for defending of PhD theses in Serbia and abroad (2 in Monte Negro). She was the member of the Habilitation Commission for 2 persons in Romania and 1 person in Hungary. She is the co-author of 6 text-books for students: one of them is in English published by Lambert. She was invited lecturer at the International Center for Mechanics. (CISM) in Udine, Italy (2006) and International Doctoral School on Nonlinear Sciences in Sao Paulo, Brazil (2019).

Organizational: Dr Cveticanin was the Head of the Institute of Mechanics and Mechanical Design at the Faculty of Technical Sciences, University of Novi Sad in two periods (1990-1996), Head of the Department of technical Mechanics and design since 2018, Head of the Chair of Technical Mechanics since 1990 to 1996 and since 2018, Vice-dean at the Faculty of Technical Sciences (1997-2000), Head of the Department and of the Chair for Graphical Engineering and Design (1999-2011), Head of the Doctoral School for Safety and Security Sciences at the Obuda University in Budapest (Hungary) since 2016.

Dr Cveticanin participated as a chair, co-chair or participant in numerous international projects, including the Cost Action CA 15125 DENORMS and SenVibe project (both supported by EU) and 12 national projects. Due to mobility programs ERASMUS+ and CEEPUS of EU she established scientific cooperation with teams from Romania, Portugal, Bosnia and Herzegovina, Poland, Lithuania and Slovakia. As engineer with license of Engineering Chamber of Serbia she is the co-author of 52 engineering projects, 8 original technical solutions – produced constructions and 10 new production lines. She is the consultant in vibrodiagnostics of rotors and machines and also in noise and vibration protection.

She is a long-term member of renowned international associations GAMM, IFToMM and ASME.

Contribution to Nonlinear Sciences: The research work of Dr Cveticanin has been dedicated to nonlinear sciences, more specifically the fields of strong nonlinear oscillators. She developed analytic procedures for solving nonlinear differential equations of oscillatory motion: the homotopy method, asymptotic method based on the exact period of vibration, etc. She also introduced a method for solving oscillator with strong nonlinearity of integer or non-integer order which is in the literature known as ‘Cveticanin Method’ (види *Mickens, Ronald E. (2010). Truly Nonlinear Oscillations: Harmonic Balance, Parameter Expansions, Iterations, and Averaging Methods. World Scientific. ISBN 978-981-4291-65-1*).

A List of 5 Selected Research Publications

1. L. Cveticanin, *Dynamics of Bodies with Time-Variable Mass*, ISBN 978-3-319-22055-0, Springer, Berlin, Heidelberg, 2016.
2. L. Cveticanin, *Strong Nonlinear Oscillator - Analytical Solutions*, Mathematical Engineering, Second Edition, ISBN 978-3-319-58825-4, Springer, Berlin, Heidelberg, 2018.
3. L. Cveticanin, Homotopy-perturbation method for pure non-linear differential equation, *Chaos, Solitons and Fractals*, Vol.30, 2006, 1221-1230.
4. L. Cveticanin, Oscillator with fraction order restoring force, *Journal of Sound and Vibration*, Vol.320, 2009, 1064-1077.

5. L. Cveticanin, M. Zukovic, D. Cveticanin, Exact steady states of periodically forced and essentially nonlinear and damped oscillator, *Communications in Nonlinear Science and Numerical Simulation*, vol.78, 104895, pp.1-11, 2019.

Private: Widow. She has a son (Dr.-Dipl.Ing.) and three granddaughters.

Link to Extended CV: <https://scholar.google.com/citations?user=Li19f7MAAAAJ&hl=en>