

Curriculum Vitae

Family Name Rakin	First Name Marko	Title Prof.Dr.	Job Title Associate Professor
Institution Univ. of Belgrade, Faculty of Technology and Metallurgy		Address Karnegijeva 4	Country Serbia
Telephone +381 11 3303 653	Fax +381 3370 387	Email marko@tmf.bg.ac.rs	Nationality Serbian

Education

degrees, universities, and dates

Dipl. Ing.: University of Belgrade, Faculty of Mechanical Engineering, March 1992

M.Sc. - Magister of Sci.: University of Belgrade, Faculty of Mechanical Engineering, November 1996

Ph.D.: University of Belgrade, Faculty of Technology and Metallurgy, February 2003

Postdoctoral studies: Österreichische Akademie der Wissenschaften - Erich-Schmid Institut für Materialenwissenschaft, Montanuniversität Leoben (Austria), October 1st 2003. - October 31st 2004

Employment

employers, positions, and dates

University of Belgrade, Faculty of Mechanical Engineering - Research Assistant, 1992-94

University of Belgrade, Faculty of Technology and Metallurgy - Teaching Assistant, 1995-2005

University of Belgrade, Faculty of Technology and Metallurgy - Assistant Professor, 2005-10

University of Belgrade, Faculty of Technology and Metallurgy - Associate Professor, 2010 -2015

University of Belgrade, Faculty of Technology and Metallurgy - Full Professor, 2015-

Research

Applied mechanics in materials science – damage and fracture mechanics (mechanical, thermal and coupled loading, micromechanical analysis of fracture initiation, fatigue, fracture of heterogeneous materials and structures, estimation of residual stresses influence using configurational forces concept); fracture behaviour assessment of various structures. Experimental, analytical and numerical analysis of components and structures - determination of residual stresses, failure prevention and structural integrity assessment, application of the finite element method for determining the stress and strain fields of complex components and structures; application of information technologies in industry.

Author or co-author of one national monograph, more than 100 papers in scientific journals and conference proceedings (more than 40 in international journals). Author or co-author of four chapters in national monographs. Project leader of two national basic research projects, project leader in Serbia of one bilateral project and coordinator at the Faculty of Technology and Metallurgy of three Eureka projects. Participant in many national and international scientific, technological development and innovative projects.

Current Research Activities

titles of ongoing activities; please give the names and institutions of any international collaborators

Current projects:

- "Micromechanical criteria of damage and fracture", Basic research project of the Ministry of science and environmental protection of Serbia 2011-2014, project leader

- "Sustainability and improvement of mechanical systems in energetics and transport by application of forensic engineering, eco and robust design", Technological development project of the Ministry of science and environmental protection of Serbia, 2011-2014.

International Collaborators:

Prof. Dr. Nenad Gubelj, University of Maribor, Faculty of Mechanical Engineering

Prof. Dr. Otmar Kolednik, Prof. Dr. Reinhard Pippan, Österreichische Akademie der Wissenschaften - Erich-Schmid Institut für Materialwissenschaft, Montanuniversität Leoben (Austria)

Prof. Dr. Liviu Marsavina, University Politehnica, Timisoara (Romania)

Prof. Dr. Dražan Kozak, J.J. Strossmayer Univ. Osijek, Mechanical Engineering Faculty, Slavonski Brod (Croatia)

Previous projects:

- "Special issues in fracture mechanics of materials ", Basic research project of the Ministry of science and environmental protection of Serbia 2006-10, project leader
- "Development of high performance machines and methods for identification of their response to internal and external disturbances", Technological development project of the Ministry of science and environmental protection of Serbia, 2008-2010.
- "Integrity assessment and energy efficiency of structures in service", bilateral pr. Serbia - Croatia, 2010-11
- "Development and production of wear resistant composite steel – SiC castings ", Innovative project of the Ministry of science and environmental protection of Serbia, 2007-2008
- "On line monitoring of structures and fatigue loading - OLMOST" Eureka project E!5348, 2010-12 (coordinator)
- "Mobile structure's integrity system - MOSTIS" Eureka project E!3927, 2007-09 (coordinator)
- "European welding consultant tool", Eureka project E!3595, 2006-07 (coordinator)
- "Global project management system for distributed industrial companies – GPMS" Eureka project E!4573, 2009-11 (coordinator)
- Failure prevention of inhomogeneous materials and structures", bilateral project Serbia - Slovenia, 2008-09 (project leader in Serbia)

Publications

up to three recent publications relevant to this project plan

1. M. Rakin, O. Kolednik, B. Međo, N.K. Simha, F.D. Fischer: A case study on the effect of thermal residual stresses on the crack driving force in linear-elastic bimetals. *International Journal of Mechanical Sciences*, Vol. 51 (2009) pp. 531-540
2. S. Bošnjak, M. Arsić, N. Zrnić, M. Rakin, M. Pantelić: Bucket wheel excavator: Integrity assessment of the bucket wheel boom tie-rod welded joint. *Engineering Failure Analysis*, Vol. 18 (2010) pp. 212-222
3. M. Vratnica, G. Pluvinage, P. Jodin, Z. Cvijović, M. Rakin, Z. Burzić, K. Gerić: Notch fracture toughness of high-strength Al alloys. *Materials and Design*, Vol.44 (2013) pp. 303-310

Honours

awards, fellowships, professional societies, etc.

Editor in chief of the journal *Structural Integrity and Life* (2003-2005), Member of the Editorial board (2005-).

President of Committee for pressure vessels of the Institute for Standardization of Serbia.

Member of Supervisory board of the Serbian Society of Mechanics.

Award of the Serbian Ministry of Science and Environmental Protection for 2002 – 2003, in the research field of mechanics and mathematics.

Bronze medal with Nikola Tesla's portrait (several authors) at the International Exhibition of Inventions, New Technologies and Design INVENTIONS - Belgrade 2009.

Membership: European Structural Integrity Society (ESIS) - involved in activities of technical committees for micromechanisms (TC2) and numerical methods (TC8), Society for Structural Integrity and Life (Serbian, DIVK), Serbian Society for Advancement of Welding (DUZS), Serbian Society of Mechanics (SSM). Member of scientific committees of four international conferences. Several invited lectures at international and national conferences.



Prof. Dr. Marko P. Rakin was born on 24.06.1966. in Belgrade. He graduated at the Faculty of Mechanical Engineering in Belgrade in 1992. At the same Faculty he defended his magistar thesis in 1996. In 2003 he defended his doctoral dissertation at the Faculty of Technology and Metallurgy (TMF), Belgrade – in the field of metallurgy. In the period from 01.10.2003 - 31.10.2004 he was a postdoctoral fellow at the "Österreichische Akademie der Wissenschaften – Erich-Schmid Institut für Materialenwissenschaft" (Austria). For the title of associate professor he was elected in 2010 in the field of Materials Engineering, and became a full professor in 2015 for

the same scientific field at the TMF where he is employed.

His field of work is micromechanical analysis of damage and fracture of metal materials; mechanics of inhomogeneous materials (primarily welded joints and composite materials); testing of components of processing equipment and equipment in power plants, including calculations using the finite element method; development of titanium based implant materials including nanoparticle titanium alloys, as well as the application of information technologies in the field of welded structures integrity and energetics.

Within the framework of scientific research, he published a monograph of national significance, he is the author and co-author of 52 papers published in international journals, 43 papers published in national journals, as well as a large number of presentations at international and national conferences. According to Scopus data base, Dr. Rakin's papers were cited 291 times.

Twice Dr. Rakin led national projects funded by the Ministry of Education, Science and Technological Development of the RS and one bilateral project Serbia-Slovenia. He has participated or is participating in the realization of 28 projects - scientific, innovation and technological development projects, of which 10 international.

He participated in the realization of 6 projects and studies financed by the industry (in 3 as a project leader), and is the author of one expert estimate. He co-authored 10 technical solutions.

He teaches undergraduate and postgraduate studies at the faculty where he works, participated in teaching at the Faculty of Mechanical Engineering and was a lecturer at the Malta College of Arts, Science & Technology MCAST courses: Plant Design (2010) - Master's studies, Plant Typology (2011) and Product Design (2013).

To date, he was a mentor for 7 defended PhD dissertations, 27 graduate papers, 15 master papers and 20 final papers. He was a member of the committee for 10 defended doctoral dissertations and numerous bachelor and master papers.

He is a co-author of the book "The Application of Finite Element Method in Materials Engineering" and five auxiliary handbooks, which are used in teaching of several subjects for undergraduate and master studies and the realization of two courses of doctoral studies.

He established international collaboration with research groups from: Erich-Schmid Institut für Materialenwissenschaft and Montanuniversität Leoben (Austria), Faculty of Mechanical Engineering, University of Maribor (Slovenia), Politehnica University of Timisoara (Romania), Helmholtz Zentrum Geesthacht (Germany), Sør-Trøndelag University College HiST, Trondheim (Norway) and the Faculty of Mechanical Eng. in Slavonski Brod, University of Osijek (Croatia).

He was editor in chief of the journal "Structural Integrity and Life" in the period 2003-2005, he reviewed a significant number of publications in international journals. Also he has given a number of invited lectures.

Since 2009, he is the president of the expert committee for pressure equipment for the Institute for Standardization of the RS, and since 2012 the Chairman of the Supervisory Board of IHIS Science & Technology Park Zemun Inc. He is a member of the Board of Directors of the Society for Structural Integrity and Life (DIVK). He is a member of the European Society for Structural Integrity and Life (ESIS) and the Society for advancement of welding.

He organized a number of training courses for work in the licensed software package Abaqus. He also took part in the execution of training courses in "Belgrade power plants" and the fossil fuel power plant "Nikola Tesla" in Obrenovac.

Dr. Rakin speaks English and German and has knowledge of the Russian language. He is married with two children.