

Corrosion and Structural Integrity section of DIVK

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About Corrosion and Structural Integrity section of DIVK:

Corrosion management and assessment are critical aspects of structural integrity and health monitoring, ensuring that corrosion-exposed components maintain operational reliability throughout their lifespan. Furthermore, structural integrity assessment of corrosion-damaged industrial components, as an integral part of effective corrosion management, is a critical engineering process that evaluates whether a component, such as a pipeline, pressure vessel, or offshore structure, retains sufficient strength to operate safely or requires repair or replacement. We recognize the importance of the recently proposed paradigm shift in corrosion management from protection to prevention and prediction (corrosion and structural integrity assessment).

Therefore, two major topics of the Corrosion and Structural Integrity section of DIVK are:

- (1) Predictive structural integrity assessment (fracture mechanics-based, finite element method/simulation, and corrosion defect/fracture-assessment procedures and codes), and
- (2) Modeling (data-driven structural integrity assessment, multi-scale, machine-learning, and physics-based models) of corrosion-assisted degradation, including remaining life assessment.

(3) Electrochemical characterization and corrosion protection (electrochemical testing, localized electrochemical techniques, protective coatings, conversion coatings, and surface engineering for durability enhancement).

(4) Industrial collaboration and technology transfer (industry-driven research, validation of corrosion protection technologies, and translation of laboratory-scale innovations into industrial applications).

Chairs: Short CV

1. Branimir N. Grgur, Ph.D (Chemical Engineering), is a Full Professor at the University of Belgrade, Faculty of Technology and Metallurgy (TMF), Department of Physical Chemistry and Electrochemistry, Belgrade, Serbia. His research focuses on corrosion and protection, advanced materials for sustainable energy storage, electrocatalysis, and next-generation battery systems. He completed his B.Sci. (1992), M.Sci. (1994), and Ph.D. (1999, Chemical Engineering) at TMF. He gained significant international experience at the Lawrence Berkeley National Laboratory (LBNL), USA, through a specialization from 1996 to 1998 and postdoctoral studies in 2000. In 2018, he was elected as a corresponding member of the Academy of Engineering Sciences of Serbia. A prolific researcher and educator, Prof. Grgur has published over 190 peer-reviewed papers, cited more than 9800 times with an h-index of 46. He authored two books: "Fundamental Aspects of Electrometallurgy" and "Alternative Energy Sources: Principles of Conversion and Storage", and three University textbooks "Corrosion and Protection", "Electrochemistry" and "Fundamentals of Electrometallurgy". He has been consistently recognized on the Stanford list of the top 2% of scientists since 2019. Throughout his career, he has led numerous national and international projects and mentored 15 Ph.D. candidates, remaining dedicated to bridging fundamental science with practical applications for a greener, more sustainable future.

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2. Dr. Aleksandra S. Popović is a Teaching Assistant at the University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia. After completing her PhD in electrochemical energy systems in 2024, she made a strategic transition toward corrosion science, which now represents her primary research focus. She specializes in the development and characterization of environmentally friendly coatings for corrosion protection, with current work centered on self-healing systems and nanocarriers for corrosion inhibitors. She is the initiator and President of the Organizing Committee of "Corrosion 360°", a scientific meeting aimed at connecting academia and industry in Serbia to jointly address corrosion challenges. She is strongly

committed to fostering a collaborative scientific community and to encouraging greater visibility and empowerment of women in science through leadership and active engagement. Dr. Popović received (1) The certificate of appreciation for having organized an activity in the frame of Corrosion Awareness Day 2025, (2) Student of the Generation Award of the University of Belgrade 2020, the best student of the Faculty of Technology and Metallurgy for 2020, (3) "Panta Tutundžić" Award, for exceptional success during studies for the school years 2016/2017, 2017/2018, 2018/2019, 2019/2020 and for final success during studies, (4) Recognition of the Serbian Chemical Society for exceptional success during studies (2021), (5) Gordana Jokić Kashiković and Dragiša Kashiković Award – for the best students of the Faculty of Mechanical Engineering, Faculty of Engineering and Faculty of Technology (2021), (6) "Nedeljko Krstajić" first award for the best graduate student in the field of Electrochemical Engineering (2021) and (7) Scholarship of the Ministry of Education, Science and Technological Development of the Republic of Serbia, and the Young Talents Fund of the Republic of Serbia, during undergraduate and master's studies.

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3. Milos B. Djukic, Ph.D (Mechanical Engineering), is a full professor at the University of Belgrade, Faculty of Mechanical Engineering, Department for Engineering Materials and Welding, Belgrade, Serbia. He is also an adjunct professor at Ohio University, Russ College of Engineering and Technology, Department of Chemical and Biomolecular Engineering, Athens, Ohio, USA. His research interests include fundamental understanding of hydrogen embrittlement in metals, hydrogen-materials interactions, corrosion and materials science, materials degradation, and the mechanical behavior of materials. He is the head of the Hydrogen Materials Interaction Laboratory at the University of Belgrade, Faculty of Mechanical Engineering. Prof. Djukic is a team member in the preparation of the Hydrogen Strategy of the Republic of Serbia and an Executive Committee Member of the European Structural Integrity Society (ESIS). He is an elected Fellow (FESIS) of the ESIS. He also serves as the chair of ESIS Technical Committee TC21 on Hydrogen Embrittlement and Transport. He is a member of the Expert Committee on "Hydrogen effects in engineering materials" of the German Society for Materials Science (DGM). Prof. Djukic has published 5 books, 10 book chapters, 1 patent, 3 technical solutions, more than 100 peer-reviewed scientific papers, and 120 conference articles. He was included on the 2023, 2024, and 2025 Stanford list of the top 2% of scientists. He has more than 5500 citations with an h-index of 25. He was a keynote/invited speaker at 37 international conferences and a participant/PI in 11 R&D international scientific projects. Prof. Djukic was a mentor, opponent, and member of defense or pre-examination committees for seventeen (17) Ph.D. theses in Belgium, Austria, Norway, Finland, Australia, the Netherlands, France, Israel, Brazil, Italy, Sweden, and Serbia.

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