



We are pleased to invite you to a:

## SEMINAR

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# Laser cladding nickel-based alloys for improved wear resistance and some aspects of additive manufacturing nickel-based alloys by L-DED

Andrzej Gradzik, PhD, Eng.

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The seminar will be held on **May 19, 2026**, at **10:00 a.m. – 1.00 p.m.**

Lecture hall: L\_TA – Aula V,  
Facoltà di Ingegneria e Architettura,  
Via Marengo, 2, 09123 Cagliari

Speaker Profile: Dr. Andrzej Gradzik is an Assistant Professor at Rzeszów University of Technology at Department of Materials Science and Research & Development Laboratory for Aerospace Materials.

He earned his PhD in 2021 with a thesis on the development of WC-based protective coatings on Inconel 738LC using laser cladding. His main research fields are nickel and cobalt-based alloys, laser cladding, additive manufacturing (L-DED) and residual stress analysis by XRD methods. In his presentation, he will discuss laser cladding for improved wear resistance and various technical aspects of additive manufacturing. His work aims to optimize process parameters and material performance to overcome weldability challenges in high-stress environments.





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# Crystal structure perfection of nickel-based single crystal turbine blades

Kamil Gancarczyk, PhD, Eng.

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The seminar will be held on **May 19, 2026**, at **10:00 a.m. – 1.00 p.m.**

Lecture hall: L\_TA – Aula V,  
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Speaker Profile: Dr. Kamil Gancarczyk is an Assistant Professor at Rzeszow University of Technology, specializing in the technology and mechanical properties of single-crystal nickel superalloys. His research focuses on advanced X-ray diffraction methods and has resulted in numerous significant publications in the field of aerospace engineering. With over a decade of experience in academic research and technical analysis, he contributes extensively to the development of modern casting technologies. During this seminar, he will explore the crystal structure perfection of nickel-based single-crystal turbine blades.





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# Aluminide Coatings: Fabrication Techniques, Microstructure and Properties

Barbara Kościelniak, PhD, Eng.

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Lecture hall: L\_TA – Aula V,  
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Speaker Profile: Barbara Kościelniak, PhD, Eng., earned her doctoral degree in 2017 from the Faculty of Materials Engineering and Metallurgy at the Silesian University of Technology. Her doctoral research focused on evaluating the corrosion resistance of nickel-based superalloys within the power industry.

Since 2018, she has served as a research and teaching fellow at the Department of Materials Science, within the Faculty of Mechanical Engineering and Aeronautics at the Rzeszów University of Technology. Dr. Kościelniak specializes in advanced microscopic characterization of aerospace materials, with particular expertise in: Scanning Electron Microscopy (SEM), Electron Probe Microanalysis (EPMA) and Electron Backscatter Diffraction (EBSD).

Her primary research interests involve the development and analysis of protective layers and coatings for the aerospace industry. She focuses specifically on the synthesis of aluminide coatings using pack cementation and out-of-pack methods, as well as the comprehensive evaluation of their microstructure, chemical and phase composition, and corrosion resistance.

