

IS INVITING TO

THE SECOND CONFERENCE OF PROGRAM GROUPS
ENTITLED

ENGINEERING MATERIALS AND PROCESS TECHNOLOGIES

WHEN 29.9.2025

WHERE Vladimir Bračič hall, University of Maribor, Slomškov trg 15

REGISTRATION via QR code until 12.9.2025

WHY

You will learn about the research work of program groups guided by the latest global trends and requirements in the field of developing advanced and intelligent engineering materials and process technologies. Join us to share and discuss theoretical and practical insights within a scientific and technological framework.



Program

08:00 - 09:00 **Registration, coffee and snacks**

09:00 - 09:30 **Opening Address**

09:00-09:10 Prof. Dr. Dean Korošak
Vice-Rector for Research of the University of Maribor

09:10-09:20 Prof. Dr. Matej Vesenjāk
Dean of the Faculty of Mechanical Engineering

09:20-09:30 Address of the Heads of Program Groups

09:30- 11:00 **Invited lectures**

09:30-10:00 From a Simple APM Sphere Thermal Acquisition to the AI
Approach to Atrain Evaluation by IR Thermography
Lovre Krstulović-Opara
University of Split, Faculty of Electrical Engineering, Mechanical Engineering
and Naval Architecture, Split, Croatia

10:00-10:30 Development of Hot Work Tool Steel with High Thermal
Conductivity
Peter Kirbiš
SIJ Metal Ravne

10:30-11:00 Sustainability in the Aluminium Industry
Matej Steinacher
Impol Aluminium Industry, Slovenska Bistrica, Slovenia

11:00-11:30 **Coffee break and poster section**



Program

11:30 - 13:10 Lectures 1

11:30-11:50 Development and Characterisation of Modern Metamaterials

[Nejc Novak](#)

University of Maribor, Faculty of Mechanical Engineering, Maribor, Slovenia

11:50-12:10 Effects of Helium Ion Irradiation on the Microstructure and Properties of Aluminium Alloys

[Lara Hočurščak](#)

University of Maribor, Faculty of Mechanical Engineering, Chair of Materials and Forming, Maribor, Slovenia

12:10-12:30 Beyond Traditional Lyophilization: Predictive Process Control with Digital Twins

[Matej Zadravec](#)

University of Maribor, Faculty of Mechanical Engineering, Chair for Power, Process and Environmental Engineering, Maribor, Slovenia

12:30-12:50 Water Hammer Risk Assessment and Mitigation in Industrial Pipelines: 1D and 3D Numerical Approaches

[Nejc Vovk](#)

University of Maribor, Faculty of Mechanical Engineering, Chair for Power, Process and Environmental Engineering, Maribor, Slovenia

12:50-13:10 Contamination Release From the Packaging Area to the Outside:

Numerical Simulation with Particles

[Matjaž Ramšak](#)

University of Maribor, Faculty of Mechanical Engineering, Maribor, Slovenia

13:10-14:40 Lunch



Program

14:40 - 16:20 Lectures 2

- 14:40-15:00 **Rheology in Polymer and Polymer Composite Processing**
Tilen Švarc
University of Maribor, Faculty of Mechanical Engineering, Chair of Materials and Forming, Maribor, Slovenia
- 15:00-15:20 **Polysaccharides in Biomedical Applications**
Matej Bračič
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Laboratory for Characterization and Processing of Polymers, Maribor, Slovenia
- 15:20-15:40 **Biopolymer-Based Membranes for Fuel Cell Applications**
Maša Hren
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Maribor, Slovenia
- 15:40-16:00 **Green Colloidal Coatings Based on Pullulan and Bio-Extracts from Chestnut Wood for Active Food Packaging**
Athira John
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Laboratory for Characterization and Processing of Polymers, Maribor, Slovenia
- 16:00-16:20 **Thermal and Catalytic Pyrolysis of Waste for the Recovery of Secondary Materials and Energy Source Production**
Luka Lešnik
University of Maribor, Faculty of Mechanical Engineering, Department Chair for Power, Process and Environmental Engineering, Maribor, Slovenia

16:20 - 16:50 Coffee break and poster section



Program

16:50 - 18:30 Lectures 3

- 16:50-17:10 **Personalised Intelligent Wearable System for Freezing of Gait Detection and Active Stimulation for Patients with Parkinson's Disease**
Jelka Geršak
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Maribor, Slovenia
- 17:10-17:30 **Thermally Conductive Cellulose-Based Substrates for Flexible Electronics**
Vanja Kokol
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Maribor, Slovenia
- 17:30-17:50 **Gold Nanoparticle Dispersions for Plasma Jet Printing of Printed Circuit Boards: Characterisation of Stability, Printability and High Frequency Signal Performance**
Lan Kresnik
University of Maribor, Faculty of Mechanical Engineering, Chair of Materials and Forming, Maribor, Slovenia
- 17:50-18:10 **Preserving the Cultural Heritage of Clothing: Sleeping Beauties**
Andreja Rudolf
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Maribor, Slovenia
- 18:10-18:30 **Assessment of Microplastic Fiber Emissions during Tumble Drying of Fabrics**
Branko Neral
University of Maribor, Faculty of Mechanical Engineering, Chair of Textile Materials and Design, Laboratory for Textile Printing and Textile Care, Maribor, Slovenia

18:30 - 18:50 Poster award and concluding remarks

