

October 20–22, 2025
Monday, 09.00–23.00
Tuesday, 09.00–19.00
Wednesday, 09.00–13.30

Łukasiewicz Research Network –
Krakow Institute of Technology
73 Zakopiańska St.
30-418 Krakow, Poland

CONFERENCE PROGRAMME

DAY 1

OCTOBER 20, 2025 (MONDAY)

- 09.00–09.30** Registration of participants
- 09.30–09.45** Opening of the conference
- 09.45–10.30** **Keynote presentation**
Chair: Dariusz Garbicz
A New Paradigm in Alloy Design, Based on High Entropy, for Developing Advanced PM Materials while Avoiding the Direct Use of Fundamental Metals
Jose M. Torralba, Charles III University of Madrid/IMDEA Materials Institute, Madrid, Spain
- 10.30–10.50** **Coffee break**
- 10.50–12.30** **Session I**
Alloys and Metallic Materials
Chair: Jose M. Torralba
- 10.50–11.10** **Advanced HEA-Ti₃SiC₂ Composites Processed by FAST/SPS: Tailoring Microstructure and Strength through Reinforcement Control**
Beata Leszczyńska-Madej, AGH University of Krakow, Krakow, Poland
- 11.10–11.30** **FAST/SPS-Based Manufacturing of Co-Cr-Fe-Mn-Ni High-Entropy Alloy**
Anna Kopeć-Surzyn, AGH University of Krakow, Krakow, Poland
- 11.30–11.50** **The Influence of Mo and TiC Content in Titanium Matrix Composites on the Microstructure, Mechanical, Tribological, and Corrosion Properties Obtained by the FAST/SPS Process**
Paweł Figiel, West Pomeranian University of Technology, Szczecin, Poland
- 11.50–12.10** **Spark Plasma Sintering of Hybrid Reinforced Ferritic Alloys: Microstructural Evolution and Corrosion Behavior**
Bartosz Bucholc, Łukasiewicz Research Network – Institute of Microelectronics and Photonics, Warsaw, Poland
- 12.10–12.30** **Effect of Yttrium Oxide Content on the Properties of Austenitic ODS Steels Manufactured by SPS Method**
Grzegorz Kuderski, Łukasiewicz Research Network – Institute of Microelectronics and Photonics, Warsaw, Poland
- 12.30–13.00** **Coffee break**
- 13.00–14.40** **Session II**
Advances in FAST/SPS Processing and Technology
Chair: Diletta Giuntini
- 13.00–13.20** **A Digital Twin for Design and Optimization of SPS Tooling**
Alexander Laptev, Łukasiewicz Research Network – Poznań Institute of Technology, Poznań, Poland
- 13.20–13.40** **The Future of FAST/SPS in Fusion: Scale-Up of Advanced SMART Materials**
Monica Keszler, Forschungszentrum Jülich GmbH, Jülich, Germany
- 13.40–14.00** **Evaluation of High Heating Rates in FAST/SPS Sintering: Benefits, Challenges, and Limitations**
Jakub Wiśniewski, Łukasiewicz Research Network – Poznań Institute of Technology, Poznań, Poland

- 14.00–14.20** **Is What We See Is Really What We Get? Process Data Correction Approach**
Kamil Kaszyca, Łukasiewicz Research Network – Institute of Microelectronics and Photonics, Warsaw, Poland
- 14.20–14.40** **From Superalloys to Intermetallics: The Role of U-FAST Technology in the Transformation of High-Temperature Materials**
Katarzyna Jach, GeniCore Sp. z o.o., Warsaw, Poland
- 14.40–15.30** **Lunch**
- 15.30–16.30** **Session III**
Magnetic Materials
Chair: Jan Raethel
- 15.30–15.50** **Advanced Powder Metallurgy as Key for High-Performance Soft Magnetic Components**
Johannes Trapp, Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Dresden, Germany
- 15.50–16.10** **Directly recycling hot-deformed Nd-Fe-B magnet scrap via spark plasma texturing**
Monica Keszler, Forschungszentrum Jülich GmbH, Jülich, Germany
- 16.10–16.30** **Tailoring the Properties of $\text{Cr}_2\text{-xV}_x\text{O}_3$ Compounds through Spark Plasma Synthesis**
Igor Veremchuk, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany
- 16.30–17.30** **Poster session & exhibition**
- 20.00–23.00** **Conference dinner**

DAY 2
OCTOBER 21, 2025 (TUESDAY)

- 09.00–09.05** **Opening of the second day of conference**
- 09.05–09.50** **Keynote presentation**
Chair: Alexander Laptev
Spark Plasma Sintering of Light Ceramics Based on Boron Carbide or Boron Phosphide. Comparison and Analysis of Their Sintering Ability and Mechanical Performances
Alexandre Maitre, University of Limoges, Limoges, France
- 09.50–10.10** **Coffee break**
- 10.10–11.30** **Session IV**
Borides
Chair: Piotr Klimczyk
- 10.10–10.30** **Manufacturing of Boride-Based Composites Utilizing SPS Technique**
Zbigniew Pędzich, AGH University of Krakow, Krakow, Poland
- 10.30–10.50** **Impact of Precursor Morphology on the Synthesis and Properties of TaB_2 Fabricated via Reactive Spark Plasma Sintering**
Jan Słomiński, Łukasiewicz Research Network – Krakow Institute of Technology, Krakow, Poland
- 10.50–11.10** **The Influence of Different Coatings on the Tribological Behavior of Plasma-Sintered Ti-TiB_2 Materials at the Nanoscale**
Wojciech Łoński, Łukasiewicz Research Network – Institute for Sustainable Technologies, Radom, Poland
- 11.10–11.30** **Influence of Substrate Temperature on Properties of W-Ti-B and W-Ta-B Coatings on Cemented Carbide Tools Deposited by HiPIMS**
Rafał Psiuk, Institute of Fundamental Technological Research PAS, Warsaw, Poland
- 11.30–12.00** **Coffee break**
- 12.00–13.20** **Industrial session**
Chair: Rafał Zybala
- 12.00–12.20** **Innovative Developments in Spark Plasma Sintering (SPS) Equipment Driven by Application Demands**
Damian Karpowicz, GeniCore Sp. z o.o., Warsaw, Poland

- 12.20–12.40 Materials Design, Systems & Devices LLC: Innovating Advanced Sintering Technologies**
Juliusz Leszczyński, Materials Design, Systems & Devices LLC, Krakow, Poland
- 12.40–13.00 Graphite as a Tool for SPS Molds**
Kristian Beno, TOP Grafit s. r. o., Topolcany, Slovakia
- 13.00–13.20 Sintering Ceramic Materials for Industrial Application**
Jens Huber, Dr. Fritsch Sondermaschinen GmbH, Fellbach, Germany
- 13.20–14.00 Lunch**
- 15.00–19.00 City tour**

DAY 3
OCTOBER 22, 2025 (WEDNESDAY)

- 09.00–09.05 Opening of the third day of conference**
- 09.05–09.50 Keynote presentation**
Chair: Abdullah Riaz
Double-Tough Ceramics: Leveraging Multiscale Toughening via Material Design, FAST/SPS and Bayesian Optimization
Diletta Giuntini, Eindhoven University of Technology, Eindhoven, The Netherlands
- 09.50–10.10 Coffee break**
- 10.10–11.10 Session V**
Functional Materials
Chair: Johannes Trapp
- 10.10–10.30 Field-Assisted Sintering of Interconnected Porous Lithium Sodium Potassium Niobate Piezoceramics for Bone Regeneration**
Abdullah Riaz, University of Rostock, Rostock, Germany
- 10.30–10.50 Development of FAST/SPS-Processed Targets for Magnetron Sputtering of LiPON Solid-State Ionic Conductors**
Mateusz Marczewski, Łukasiewicz Research Network – Poznań Institute of Technology, Poznan, Poland
- 10.50–11.10 FAST-Delivered Ceramics for K-ion Cell Components**
Wiktoria Krzyżaniak, Łukasiewicz Research Network – Poznań Institute of Technology, Poznan, Poland
- 11.10–11.40 Coffee break**
- 11.40–12.40 Session VI**
Advanced Ceramic Composites
Chair: Marcin Chmielewski
- 11.40–12.00 A Comparative Analysis of SPS and HPHT Sintering Methods for Advanced Ceramics Production**
Yuliia Rumiantseva, Łukasiewicz Research Network – Krakow Institute of Technology, Krakow, Poland
- 12.00–12.20 Demonstrator of the Heat Shields Manufactured by FAST/SPS and ACS Technology**
Maria Wiśniewska, Łukasiewicz Research Network – Poznań Institute of Technology, Poznan, Poland
- 12.20–12.40 The Second Life of WC in Oxide-Carbide Duplex Ceramics**
Piotr Klimczyk, Łukasiewicz Research Network – Krakow Institute of Technology, Krakow, Poland
- 12.40–13.30 Closing of the conference & lunch**