

Day 2 (October 9)

V27.02

Big Data and AI Methods

| 8:15 Welcome in the foyer of building V.27 | | | |
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| 08:30 | Key1 | K. Schütz, StableFlame GmbH, Karlsruhe, M. El-Haji , T. Freudenmann, T. Quentel, A. Bähr, EDI GMBH, Pfinztal, Germany | AI-Based Bunker Management for Thermal Waste Treatment |
| 09:10 | | T. Pychynski , Robert Bosch GmbH, Stuttgart, Germany | Causal Graph Models to Link Domain Knowledge and Artificial Intelligence in Manufacturing |
| 09:35 | | L. Griem , A. Koepe, M. Selzer, Karlsruhe Institute of Technology (KIT), B. Nestler, KIT, University of Applied Sciences, Karlsruhe, Germany | Kadi4Mat: AI Driven Extraction of Structure-Property Linkages from Material Databases |
| 10:00 | | | Communication Break |
| 10:20 | | J. A. Zak , Mercedes-Benz AG, Germany | Physics-informed Neural Networks for Aluminium Resistance Spot Welding |
| 10:45 | | T. Freudenmann , M. El-Haji, T. Quentel, A. Bähr, EDI GmbH, Pfinztal, Germany | LLM-Based Knowledge Management for Joining Connections |
| 11:10 | | S. Terliesner , V. Rominger, TRUMPF Laser- und Systemtechnik AG, Ditzingen, M. Stambke, A. Jahn, TRUMPF Laser AG, Schramberg et al., Germany | AI Applications in Laser Material Processing: Breakthroughs and Perspectives |
| 11:35 | | D. Weber , Fraunhofer Institute for Nondestructive Testing (IZFP), Saarbrücken, Germany | Simulation- and AI-Based Support in NDT with Ultrasound |
| 12:00 | | | Communication Break |
| 13:30 | | K. Jacob , Fraunhofer IZFP Saarbrücken, Germany | NDE Sensors for Traceability by Material Fingerprints |
| 13:55 | | P. Liepold , Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany | Crack Segmentation via Convolutional Neural Networks (CNNs) for Vastrestraint Type Tests |
| 14:20 | | A. Biber , Welding and Joining Institute (ISF), RWTH Aachen, Germany | Methods for Automated Crack Detection of Welded Sheets |
| 14:45 | | A. Fezer , H. Cheng, MPA University of Stuttgart, Thomas Freudenmann, EDI GmbH, Pfinztal, Germany | OptiWAL – Optimization of resistance spot welding (RSW) on aluminium alloy through big data generation from a fully-automated robotic RSW cell and ensuing analysis via traditional and AI-backed approach |
| 15:10 | | | Communication Break |
| 15:30 | | | Departure for the bus - S21-tour and Get-together at Wirtshaus Lautenschlager |

V31.01

Energy Revolution

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| 08:30 | Key1 | A. Shibli , ETD Consulting, Leatherhead, UK | Power Plant Cost and Performance Analysis When Operating in Base Load and Flexible Operation Modes With Increasing Renewables |
| 09:10 | | A. Klenk , M. Friedrich, MPA University of Stuttgart, K. Metzger, Grosskraftwerk Mannheim AG, Germany | Power Plant Test Loop to Determine Behavior of Components Under Cyclic Operation Modes |
| 09:35 | | P. Auerkari , Kiwa Inspecta Oy, Vantaa/Tampere, R. Pohja, Aalto University, Espoo, S. Tuurna, S. Toikka, Kiwa Inspecta Oy, Vantaa/Tampere, P. Vilaça, Aalto University, Espoo, Finland | In-service Creep Damage Evaluation of Ageing Plants |
| 10:00 | | | Communication Break |
| 10:20 | | L. Feng , Shanghai Electric Power Generation Co. Ltd. Turbine Plant, PR of China | Application of Preheating System of Combined Cycle Steam Turbine in Cold Start |
| 10:45 | | M. Friedrich , A. Klenk, S. Weihe, MPA University of Stuttgart, Germany | Creep-Resistant Fiber-Jacketed Pipes for High-Temperature Applications |
| 11:10 | | P. Auerkari , S. Tuurna, Kiwa Inspecta Oy, Vantaa/Tampere, R. Rintamaa, Clenercon Oy, Finland | Hydrogen for Energy Solutions - Addressing Gaps |
| 11:35 | | H. Wang , ETD Consulting, Leatherhead, UK | Use of Hydrogen as the Fuel Mix with Natural Gas in CCGTs - Technical and Cost Issues |
| 12:00 | | | Communication Break |
| 13:30 | | P. K. Dasari , B. Kagay, MPA University of Stuttgart, L. Frank, Robert Bosch GmbH, Reutlingen, A. Luthle, Siemens Energy Global GmbH & Co. KG, Mülheim, S. Stolz, Ruhr University Bochum, Germany | Influence of Hydrogen and Hydrogen Containing Gas Mixtures on the Mechanical Properties of Austenitic Stainless Steel and Nickel-Base Alloys |
| 13:55 | | A. Bridges , Electric Power Research Institute (EPRI), Charlotte, USA | Trends in the performance of heat-resistant alloys produced by directed energy deposition (DED) |
| 14:20 | | J. Kimmich , Institute for Building Energetics, Thermo Technology and Energy Storage (IGTE), University of Stuttgart Germany | From Design to Reality: Creating High-Performance Heat Exchangers with Additive Manufacturing |
| 14:45 | | W. Rheinheimer, J. Ebert , Institute for Manufacturing Technologies of Ceramic Components and Composites (IMTCCC), University of Stuttgart, Germany | Blacklight Sintering of Ceramics for Hydrogen Applications |
| 15:10 | | | Communication Break |
| 15:30 | | | Departure for the bus - S21-tour and Get-together at Wirtshaus Lautenschlager |