

Monday, 5th October, Preliminary Agenda

9:00	Registration, Breakfast and Get-Together		
9:20	Opening		
9:40	Greeting under the patronage of the Federal Government		
10:00	"Digital Models in Powder Metallurgy - How can we simulate the entire process chain?" by Prof. Dr.-Ing. Christoph Broeckmann (RWTH Aachen)		
10:40	Break from 10:40 to 11:00		
11:00	"Turning Materials into Competitive Advantage: MPA Stuttgart as a Strategic Partner for SMEs" by Dr.-Ing. Sven Donisi (Rosswag GmbH)		
11:40	"New Opportunities for Design, Irradiation and Post-Irradiation Examination of Fusion and Generation-IV Fission Materials" by Prof. Dr. Andreas Pautz (Paul Scherrer Institut)		
12:20	Lunch from 12:20 to 13:20		
13:20	NUCLEAR SAFETY & FUSION	"Evaluation of UT-Data by use of adapted AI Algorithms in Nuclear" by J. Schors (Nuclear Power Plant Leibstadt)	"In-service welding on hydrogen pipelines - a brief summary of the results of the "H2SuD" project" by M. Rhode (BAM)
13:40		"Validation of engineering methods based on Fatigue Damage Parameters FDPs for Multiaxial Fatigue Assessment of Power Plant Components" by J. Rudolph (Framatome)	"Probabilistic Fatigue Crack Growth Assessment of Hydrogen Pipelines" by E. Hosseini (Empa, Switzerland)
14:00		"Failure assessment of nuclear power plant components in severe accident scenarios using finite element simulations" by C. Bläsius (GRS)	"The role of oxygen in mitigating hydrogen embrittlement in pipeline steels" by M. Cauwels (Ghent University)
14:20		"Durability of residual stresses and microstructure evolution in cavitation-peened Alloy182 under simulated nuclear service conditions" by A. Das (PSI)	"Influence of Hydrogen and Hydrogen Containing Gas Mixtures on the Mechanical Properties of AISI 321 at Room and Elevated Temperatures" by P. Dasari (MPA Stuttgart)
14:40		Break from 14:40 to 15:00	
15:00		"Can thermal stratifications cause stress corrosion cracking?" by S. Faust (GRS)	"Towards realistic diffusion coefficients for predictive modelling of hydrogen-assisted cold cracking of welded joints" by M. Rhode (BAM)
15:20		"Specimen and component testing of nuclear pipe material with regard to fatigue issues" by N. Grözingen (MPA Stuttgart)	"Atomistic Insights into Hydrogen Behavior in Fe-Cr-Ni Alloys: Diffusion, Segregation, and Phase Evolution" by S. Starikov (Ruhr-Universität)
15:40		"EPRI EAF Component Test NDE Qualification and Flaw Sizing" by T. Damiani (EPRI)	"Influence of Nitrided Layers on Hydrogen Permeation of Steel Sheets Measured Using the Devanathan-Stachurski Cell" by M. Kerl (Heilbronn University of Applied Sciences)
16:00		Break from 16:00 to 16:20	
16:20		"Survey on the the R&D project TEAR: Investigations on High Cycle Fatigue induced by swirl penetration" by J. Rudolph (Framatome)	"Thermomechanical Fatigue Behavior of Nickel Base Alloys under the Influence of Hydrogen" by M. Schlesinger (IWM Freiburg)
16:40		"Additive Manufacturing of High Temperature Heat Pipes for Micro Modular Reactors" by S. Biswas (IKE, University of Stuttgart)	"Effect of Hydrogen and Temperature on the LCF Behavior of Metallic Materials 2.4663 and 2.4795" by S. Schönborn (Fraunhofer LBF)
17:00		"Characterization of RPV Materials from Decommissioned Zion Nuclear Generation Station Unit 1" by M. Sokolov (Oak Ridge National Laboratory)	"Comparison of External and Internal Hydrogen Effects on the Mechanical Properties of Alloy 617 and 17-4 PH" by S. Bauder (MPA Stuttgart)
17:20	Get-Together - Evening Event - Dinner at MPA - Carl v. Bach Medal		

HYDROGEN

Tuesday, 6th October, Preliminary Agenda

9:00	"New approaches in assessing the structural integrity of components" by Prof. Dr.-Ing. Matthias Oechsner (TU Darmstadt)		
9:40	"From Ultra-High Cycles to High Temperatures: VHCF in Austenitic Steels, Fatigue in Additively Manufactured Graded Materials, and Creep-Fatigue in Ni-Superalloys" by Prof. Dr.-Ing. Tilmann Beck (RPTU Kaiserslautern-Landau)		
10:20	Break from 10:20 to 10:40		
10:40	"Combined Physics-Based Simulation and Data-Driven Approaches for Minimizing Anisotropy in Industrially Rolled Aluminum Strips" by Dr.-Ing. Kai Karhausen (Speira GmbH)		
11:20	"Material characteristics - the foundation of high performance components for advanced gas turbines" by Dr.-Ing. Sebastian Piegert (Siemens Energy AG)		
12:00	Lunch from 12:00 to 13:00		
13:00	HYDROGEN	"Influence of Hydrogen on the Fatigue Lifetime of Three Cast Iron Alloys with Different Microstructures" by F. Schweizer (IWM Freiburg)	An introduction into iWeld - Overview by A. Schumm (EDF)
13:20		"Fatigue testing in forming gas as a substitute for pure hydrogen gas" by N. Ensminger (MPA Stuttgart)	"Manufacturing of a fully process-monitored austenitic weld specimen with a vvv chamfer" by G. Klenk (MPA)
13:40		"Modeling low cycle fatigue life of alloy 718 in a hydrogen environment" by F. Schweizer (IWM Freiburg)	"Microstructural simulation of an austenitic weld based on process parameters using a thermal finite element model combined with a cellular automaton" by C. Xue (Transvalor)
14:00		Break from 14:00 to 14:20	
14:20		"Mobile High Pressure Hydrogen Storage System for Underfloor Installation" by M. Kagay (Robert Bosch GmbH)	"AI based modelling of sound propagation in a weld using CIVA" by C. Reboud (CEA)
14:40		"Hydrogen-Induced Fracture Transition in Resistance Spot Welded 1.8 GPa Hot-Stamped Steel" by J. Jo (Dong-Eui University)	"Effective complex elastic tensor for elongated-grain materials: characterising anisotropic attenuation for inspection simulation" by L. Machado (University of Southampton) & N. Leymarie (CEA)
15:00		"Hydrogen Effects on Strain-Induced Martensitic Transformation and Fatigue Crack Development in Metastable Austenitic Stainless Steels" by M. Herzig (MPA Stuttgart)	"Reconstructing thick-section welds from ultrasonic data: combining physical models with learned inversion" by M. Kalkowski (University of Southampton) & N. Leymarie (CEA)
15:20	Break from 15:20 to 15:40		
15:40	AM SOLID STATE	"Heat Treatability of Wire-Based Friction Stir Additively Manufactured Age Hardening Aluminium Alloys" by O. Kessler (Rostock University)	"How much do we need to know? Material and parameter uncertainty in weld ultrasonic imaging" by M. Kalkowski (University of Southampton)
16:00		"Determination of Orientation-Dependent Mechanical Properties of Additively Manufactured Aluminum using Friction Stir Welding" by F. Weber (RWTH Aachen)	"Adaptive TFM Imaging for Weld Inspection: Towards More Reliable and Faster Optimization Procedures Using Informed Models" by A. Boukham (CEA)
16:20		"Repair of aluminium parts by AM: The use of Multi-Layer Friction Surfacing" by G. Snoeck (University of Liège)	"Implementing material information into real time structure informed imaging" by V. Samaitis (Kaunas University of Technology)
16:40		"Design of damage tolerant metallic materials by multiscale modeling" by S. Münstermann (RWTH Aachen)	Closing Remarks by A. Schumm (EDF)
17:00	Group photo & MPA "LÄB" Tour (from 17:00 to 18:30)		
18:30	<i>Public Transport to Stuttgart City (Tickets will be provided)</i> Dinner in Stuttgart City (from 19:00, open end) at Brauhaus Nesenbach Dorotheenstraße 6, 70173 Stuttgart		

iWELD
intelligent weld inspection

Wednesday, 7th October, Preliminary Agenda

09:00	FATIGUE & FAILURE	"China Speed" vs. "made in Germany" or pragmatic vs. perfect - a discussion of different fatigue strength concepts for innovative materials for e-mobility, med-tec or additive manufacturing" by S. Einbock (DHBW Stuttgart)	"Examination of surface breaking cracks in concrete with ultrasound" by U. Rabe (Fraunhofer IZFP)	NON DESTRUCTIVE TESTING
09:20		"A General Signal Analysis Method for Multiaxial Fatigue Life Prediction Under Variable and Superimposed Vibrational Loads" by A. Schmidt (Robert Bosch GmbH)	"Ultrasonic Imaging of Defects in a Thick-Walled Impeller Test Block Using Total Focusing Method and Plane Wave Imaging" by M. Spies (Waygate Technologies, Baker Hughes Digital Solutions GmbH)	
09:40		"Application of the Averaged Strain Energy Density Approach to Variable Amplitude Rotating Bending Fatigue of S690 Steel" by K. Hectors (Ghent University)	"Challenges and Solutions in the Design and Construction of Automated Non-Destructive Inspection Stations for Aerospace Applications" by J. Walz (RohTech-DST GmbH)	
10:00		Break from 10:00 to 10:20		
10:20		"Application of GISSMO Damage Model in Welding Simulation to Predict Failure of Welded Joints" by T. Loose (Dr. Loose GmbH)	"Enhancing NDT Training and Qualification with Simulation Tools" by B. Puel (EXTENDE)	
10:40		"Fatigue assessment of butt welded joints using the implicit stress gradient method" by J. Qi (Ghent University)	"An Approach to Robot-Based Ultrasonic Testing of Complex Geometries Using Array Probes" by T. Heckel (BAM)	
11:00		"Uses of Electron Channelling Contrast Imaging (ECCI) to Study Defects in Fatigue and Beyond" by R. Scales (Oxford University)	"Project UltrasonAlc - A human-centered AI approach to Ultrasonic Weld Testing" by T. Heckel (BAM)	
11:20		Break from 11:20 to 11:40		
11:40		"Resonance Fatigue Testing Machines for Structural Steel Fatigue Assessment" by F. Siemon (Uni Innsbruck)	"Comparison of different MarBN steel grades for high temperature applications in thermal power plants" by C. Sommitsch (TU Graz)	
12:00		"Applicability of Plastic Runners in Model Tests of Hydraulic Machinery: Dynamic Strain Prediction" by J. Bareis (IHS, University of Stuttgart)	"Influence of Microstructure on the Tensile and Creep Properties of AM A939" by J. Lotz (MPA Stuttgart)	
12:20	BIG DATA & AI METHODS	"Non-Proportional Loading in Fatigue Assessment - Practical Approaches with FKM" by F. Mailänder (CADFEM Germany)	"Application of serial metal additive manufacturing at Siemens Energy" by P. Findekle (Siemens Energy)	HT & ENERGY
12:40		"Numerical fatigue life prediction for the metastable austenitic stainless steel of type AISI 347 in the context of crystal plasticity finite element method" by C. Häffner (RWTH Aachen)	"ModuMix - Modular and Function-Optimized Static Mixers Enabled by Additive Manufacturing (LPBF)" by D. Beckers (Rosswag GmbH)	
13:00		Lunch from 13:00 to 14:00		
14:00	BIG DATA & AI METHODS	"Will Materials Test Themselves? AI, Autonomy, and the Future of Structural Integrity" by M. Braun (DLR)	"Practical challenges in determining the HCF load resistance of additively manufactured AlSi10Mg" by J. Rosenthal (OTH Amberg-Weiden)	ADVANCED MANUFACTURING
14:20		"A Method for fast identification of material model parameters based on machine learning" by F. Bauer (fem Forschungsinstitut, Schwäbisch Gmünd)	"Evolution of the cellular structure in 316L stainless steel manufactured by laser powder bed fusion during High cycle fatigue" by J. Zhang (RWTH Aachen)	
14:40		"Hybrid modelling Methods for metal manufacturing processing" by H. Autenrieth (Robert Bosch GmbH)	"High-Cycle Fatigue Properties of DED-Arc Manufactured Steel and Aluminum" by M. Köhler (TU Chemnitz)	
15:00		Break from 15:00 to 15:20		
15:20		"Predicting Mechanical Properties of Al-Mg-Si Alloys from DSC Thermograms" by L. Pichlmann (AIT, Austria)	"Design of High Entropy Alloys through Laser Powder Bed Fusion using Commercial Powders" by A. H. Seidou (University of Liège)	
15:40		"Integrated Quality Prediction of Resistance Spot Welding via 3D Indentation Big Data" by Y. Park (Dong-Eui University)	"Pseudo-alloying of Fe-Ag via Laser Powder Bed Fusion for Permanent Implants" by L. Kaspersmeier (Paderborn University)	
16:00		"Agentic Industrial AI for Cross-Layer Automation: Enabling Process Development and Automation with Causal AI" by M. Mounir (EDI AG)	"Accelerating the Development of Medical Titanium Alloys via In Situ Alloying in LPBF: Insights from Ti-6Al-7Nb-Cu" by P. Steinmeier (Paderborn University)	
16:20		"Real-Time Process Monitoring in Resistance Spot Welding via Physics-Informed Machine Learning" by M. Baumgarten (TU Dresden)	"Comparison of Multi-Material Manufacturing Methods for Rigid-Flexible Material Bonding in Medical Applications" by P. Szczygiel (Kielce University of Technology)	
16:40		Break from 16:40 to 17:00		
17:00		"Quality prediction using machine learning for consecutive spot welds of aluminium alloys EN AW-5182 and EN AW-6014" by R. Nagel (MPA Stuttgart)	"Electron beam powder bed fusion of a Mo-Si-B alloy: How modeling informs process design and microstructure analysis" by B. Wahlmann (FAU Erlangen-Nürnberg)	
17:20	PROCESS MODELLING	"Causal Discovery of Signal Morphology Drivers in Steel Resistance Spot Welding: A High-Dimensional Data Analysis" by H. Schulz (TU Berlin)	"Thermo-Mechanical Process Modeling of DED-Arc Additive Manufacturing: From Single Beads to Large-Scale Structures" by T. Fritschle (MPA Stuttgart)	
17:40		"FE-Based Data Generation for Structural Integrity Verification with Neural Networks" by M. Posner (IMA, University of Stuttgart)	"Influence of Melt Pool Geometry in Laser Powder Bed Fusion of 316L" by S. Sewalski (MPA Stuttgart)	