



Program

Monday, October 6th, 2025

Auditorium		Seminar room Z03.07/08	
13:30	Welcome Claudia Redenbach (RPTU), Anita Schöbel (Fraunhofer ITWM), Bernd Simeon (RPTU)		
13:40	A.54 Coupling of Fields, Scales, Dimensions and Models in Forward and Backward Analyses for Crucial Applications in Engineering and the Applied Sciences (Plenary1)¹ Wolfgang A. Wall, Institute for Computational Mechanics, Technical University of Munich, DE		
SESSION 1 – TRACK 1 (Chair: C. Redenbach)		SESSION 2 – TRACK 4 (Chair: T. Seidel)	
14:30	A.55 Polynomial Matrix Inequalities in Structural Optimization (Track Plenary)¹ Jan Zeman, Czech Technical University in Prague, CZ	A.03 A Linear Algorithm for the Single Picker Routing Problem With Decoupling Christian Manz, Johannes Gutenberg Universität Mainz, Framersheim, DE	
		A.04 A Benders Decomposition Approach for the Single Picker Routing Problem With Scattered Storage André Hassenius, Johannes Gutenberg University, Mainz, DE	
	A.07 Statistical Modeling and Generation of Inertial Ductile Fracture Surfaces Corentin Thouénon, CEA, FR	A.41 Computation of Safe Routes to School Michael Stiglmayr, Bergische Universität Wuppertal, DE	
	A.20 Determination of the Effective Crack Resistance in Porous Materials Using a Fracture Phase-Field Model Ralf Müller, TU Darmstadt, DE	A.45 A Mixed-Integer Linear Programming Approach for on-Demand Electric Shuttle Routing With Time Windows and Charging Constraints Mostafa Emam, Institute of Applied Mathematics and Scientific Computing, Neubiberg, DE	
16:00	Coffee break		
SESSION 3 – TRACK 2 (Chair: C. Totzeck)		SESSION 4 – TRACK 4 (Chair: M. Stiglmayr)	
16:30	A.01 Multiphysical Design Optimization of Electric Machines (Track Plenary)¹ Peter Gangl, RICAM Linz, AT	A.30 Ordered-Median Location Problems in Intermodal Networks Jonas Breihof, RPTU University Kaiserslautern-Landau, DE	
	A.06 High Performance Algorithms for Shape Optimization With Lipschitz Transformations Martin Siebenborn, Universität Koblenz, DE	A.34 Solving Partial Inverse Combinatorial Problems Eva Ley, TU Braunschweig, DE	
	A.23 Fluid Dynamical Shape Optimization for Industrial Applications Sebastian Blauth, Fraunhofer ITWM, Kaiserslautern, DE	A.37 Normalizing Flow-Enhanced Variational Autoencoder With Neural ODEs for Population Modeling Marcus Baaz, Fraunhofer-Chalmers Centre, Göteborg, SE	
18:00	End of conference day 1		

1) Plenary or track plenary, 45 min. | Contributed talk, 22.5 min. (both including discussions)

Tuesday, October 7th, 2025

Auditorium		Seminar room Z03.07/08	
9:00	A.52 On Subproblem Tradeoffs in Multiobjective Optimization (Plenary 2)¹ Margaret M. Wiecek, School of Mathematical and Statistical Sciences, Clemson University, Clemson, US		
SESSION 5 – TRACK 4 (Chair: J. Breihof)		SESSION 6 – TRACK 1 (Chair: K. Steiner)	
9:50	A.29 Integrating Sequential Optimization Problems in a Multiobjective Context Jonas Hürter, RPTU University Kaiserslautern-Landau, DE		A.26 Bridging Computational Time Scales in Aerosol Dynamics Prediction: Combining Monte Carlo Simulations and Neural Networks Lukas Fuchs, Ulm University, DE
	A.46 A Hypervolume-Based Method for Multi-Objective Two-Stage Robust Optimization Problems Johannes Kager, Technische Universität München, Straubing, DE		A.02 Efficient Multiscale Simulation of Immiscible Two-Phase Flow for Liquid Composite Molding Processes Dominik Burr, Fraunhofer ITWM, Kaiserslautern, DE
	A.10 Parametric Linear Programming Interdiction Simon Wirschem, RPTU University Kaiserslautern-Landau, DE		A.31 Structure-Property Relationships for Nickel-Rich Cathodes of Lithium-Ion Batteries, Using Resistor Network Simulations Based on Micro-CT Image Data Phillip Gräfensteiner, Ulm University, DE
	A.25 A Multi-Objective Perspective on Block-Structured Integer Programs With Coupling Constraints Kathrin Klamroth, University of Wuppertal, DE		A.12 Computing the Micromagnetic Response of a Bulk Ferromagnet by an FFT-based Method Matti Schneider, University of Duisburg-Essen, DE
11:20	Coffee break		
SESSION 7 – TRACK 4 (Chair: K. Klamroth)		SESSION 8 – TRACK 2 (Chair: C. Leithäuser)	
11:40	A.36 Inverse Robust Optimization Problems and Their Solution Using Adaptive Discretization Methods (Track Plenary)¹ Tobias Seidel, Fraunhofer Institute for Industrial Mathematics ITWM, DE		A.05 Unravelling the Mystery of Enhanced Open-Circuit Voltages in Nanotextured Perovskite Solar Cells Patricio Farrell, Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, DE
			A.13 Numerical Simulation of Fluid-Structure-Acoustic Problem Motivated by Human Phonation Jan Valášek, Czech Technical University in Prague, CZ
	A.14 Reoptimization in Radiotherapy: Reducing Bilevel Problems to Single-Level Multi-Criteria Optimization Problems Mara Schubert, Fraunhofer ITWM, Kaiserslautern, DE		A.33 Theoretical Modeling and Experimental Verification of the Electro-Thermomechanical Coupling of Shape Memory Alloy Hybrid Composites Max Kaiser, Leibniz-Institut für Verbundwerkstoffe GmbH, Kaiserslautern, DE
	A.40 Solving Adjustable Robust Problems by Bilevel Optimization Techniques Kerstin Schneider, Fraunhofer ITWM, Kaiserslautern, DE		A.27 Sequential Quadratic and Convex Optimisation With FEniCSx and PETSc Paul T. Kühner, University of Luxembourg, Esch-Belval Esch-sur-Alzette, LU
13:10	Lunch break		
SESSION 9 – TRACK 3 (Chair: B. Simeon)		SESSION 10 – TRACK 1 (Chair: H. Andrä)	
14:30	A.48 Computational Dynamics Towards Artificial Intelligence (Track Plenary)¹ Johannes Gerstmayr, University of Innsbruck, AT		A.44 Predicting the 3D Nanostructure of SOFC Anodes From 2D SEM Images Using Spatial Stochastic Modeling and CNNs Léon Schröder, Ulm University, DE
			A.09 Two-Scale Geometric Microstructure Modeling of Wood Fiber Insulation Mats Alex Keilmann, RPTU University Kaiserslautern-Landau, DE
	A.21 Towards Fast-Response AI Models for Wheel Loader-Granular Material Interaction Based on Validated DEM-MBD Simulations Pontus Malmköld, Fraunhofer Chalmers Centre, Gothenburg, SE		A.39 Multiscale Approach to Super-Resolve X-Ct Data of Crushed Fayalite Slag, Using Generative Adversarial Networks Tom Kirstein, Ulm University, Neu-Ulm, DE
	A.51 Dual-Mode Model Predictive Motion Cueing for Robot-Based Driving Simulators Tim Nicolai, Fraunhofer Institute for Industrial Mathematics ITWM, Kaiserslautern, DE		A.43 Hybrid Classical–Quantum Pipeline for Crack Detection Using VQLS-Enhanced QSVMs Akshaya Srinivasan, Fraunhofer ITWM, Kaiserslautern, DE
16:00	Coffee break		
SESSION 11 – TRACK 3 (Chair: M. Burger)		SESSION 12 – TRACK 5 (Chair: C. Fieker)	
16:20	A.50 Multiscale Coupling for the Usage-Specific Simulation of Battery-Electric Vehicles Karen Luka Schmidt, Fraunhofer ITWM, Kaiserslautern, DE		A.22 Coupling Computational Mathematics Software: A Brief Review of Practices in SageMath and Friends (Track Plenary)¹ Nicolas M. Thiéry, Université Paris-Saclay, Gif-sur-Yvette, FR
	A.35 Straightforward Computation of Interface-Jacobian and Coupling Sensitivities for Co-Simulation and Solver-Coupling Techniques Stefan Klimmek, TU Darmstadt, DE		
	A.17 Virtual Planning and Optimization of Factory Layouts Raad Salman, Fraunhofer-Chalmers Centre, Gothenburg, SE		A.47 The OSCAR Computer Algebra System Max Horn, RPTU University Kaiserslautern-Landau, DE
	A.49 Cancelled: Reduced Order Models in Wheel-Rail Applications Diana Manvelyan-Stroot, Siemens AG, Garching bei München, DE		
17:50	End of conference day 2		
18:30	Conference dinner		

1) Plenary or track plenary, 45 min. | Contributed talk, 22.5 min. (both including discussions)

Wednesday, October 8th, 2025

Auditorium		Seminar room Z03.07/08
	SESSION 13 – TRACK 5 (Chair: M. Horn)	SESSION 14 – TRACK 1
9:00	A.54 Tools for High Performance Treatment of Coupled Problems (Track Plenary)¹ Marc Alexander Schweitzer, Fraunhofer Institute for Algorithms and Scientific Computing SCAI, Sankt Augustin, DE A.42 Adaptive Coupled Multiphysics Simulations With Trixi.jl Simon Candelaresi, University of Augsburg, DE	Session cancelled
10:10	Coffee break	
	SESSION 15 (SPECIAL TRACK)	SESSION 16 – TRACK 5 (Chair: M. Rahn)
10:30	A.28 EU-MATHS-IN – Mathematics for Innovation: Success Stories and Support for European Industries Matthias Ehrhardt, University of Wuppertal, DE A.24 Costumer Segmentation in Automotive Companies Jorge Santos, LEMA – Mathematics Engineering Lab, PT A.15 Cancelled: Accelerating Innovation in Circular Composite Materials Through Integration of in-Silico Design Methodologies Panayiota Katsamba, University of Technology, Limassol, CY A.16 Replaced: Evading Regulation, Entering Ecosystems: A Microscale Modelling Lens on Microplastic Fibres Speaker: Christos Marangos, Cyprus Institute, Nikosia, CY	A.08 Phase-Field Modeling of Fluid-Solid Single-Phase Flow: Solution Strategies Cedric Riethmüller, University of Stuttgart, DE A.38 Accelerated Permeability Prediction in Fibrous Microstructures Using Deep Learning and CFD Coupling Stefano Cassola, Leibniz-Institut für Verbundwerkstoffe, Kaiserslautern, DE A.11 New talk: Deep Material Networks for Multi-Scale Fatigue Simulation of Fiber-Reinforced Composites Pavan Bhat Keelanje Srinivas, Fraunhofer ITWM, Kaiserslautern, DE
11:45	A.18 Efficient Coupling of Physics-Based Local Surrogate Models for Linear Parametric PDEs via Overlapping Domain Decomposition (Plenary 3)¹ Marco Discacciati, Loughborough University, UK	
12:35	Closing remarks	
14:00	KOMSO Meeting	

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