



Tentative Program
Stand: March 5

March 18, Monday		
12:00	13:00	Registration
13:00	13:30	<i>Prof. Andreas Seidel-Morgenstern, MPI Magdeburg</i> Welcome address
13:30	14:30	<i>Dr. Samik Ghosh</i> Towards creating an engine of scientific discovery
14:30	15:00	Coffee break
15:00	16:30	Session I: Mathematical in modeling and optimization of complex systems Chair: Prof. Dr. Sebastian Sager, Otto von Guericke University Magdeburg
15:00	15:15	<i>Carlos Andre Munoz Lopez</i> Optimal data scaling for tensor-based data driven modeling of batch processes
15:15	15:30	<i>Dr. René Schenkendorf</i> Robust model selection: flatness-based optimal experimental design for a bioenzymatic reaction network
15:30	15:45	<i>Panagiotis Petsagkourakis</i> Reinforcement learning for batch-to-batch bioprocess optimisation
15:45	16:00	<i>Viviane de Buck</i> Towards interactive genetic optimization algorithms: Introducing a novel trade-off based selection and stopping criterion
16:00	16:15	<i>Kirandeep Kour</i> Nonlinear classification: a kernelized support tensor train machine
16:15	16:30	<i>Cleophas Kweyu</i> Fast solution of the Poisson-Boltzmann equation by the reduced basis method and range-separated canonical tensor format
16:30	18:00	Poster session/ snack & discuss
19:30	20:30	Magdeburg city tour and get-together at the bar "Das Kartell"

March 19, Tuesday

9:00	10:30	Session II: Novel methods for the manufacturing of pharmaceuticals Chair: Dr. René Schenkendorf, TU Braunschweig
9:00	10:00	<i>Dr. Timothy Noel</i> Innovation in synthetic methodology through use of flow
10:00	10:15	<i>Susann Triemer</i> Coupling of extraction and partial synthesis for efficient production of the antimalarial artemisinin
10:15	10:30	<i>Lars-Erik Meyer</i> Integration of adsorption and crystallization into biocatalytic synthesis to overcome process limitations
10:30	11:00	Coffee break
11:00	12:30	Session III: Modelling approaches in bioprocess engineering Chair: Dr. Yvonne Genzel, MPI Magdeburg
11:00	11:30	<i>Dr. Seyed Soheil Mansouri</i> BIOPRO-Sim: a benchmark simulation model for bio-manufacturing processes
11:30	11:45	<i>Stefanie Duvigneau</i> In silico study for cell lines with gene overexpression to predict enhanced candidates for an improved influenza vaccine production process
11:45	12:00	<i>Sabine Koch</i> RedCom: an approach for metabolic modeling of microbial communities and its application for analyzing experimental datasets from anaerobic digestion
12:00	12:15	<i>Thorsten Greinert</i> A thermodynamic approach to describe glycolysis
12:15	12:30	<i>Miko Schleinitz</i> Identification of optimal protein formulations using thermodynamic models
12:30	13:30	Lunch break
13:30	14:00	Visit of the MPI pilot plant hall
14:00	15:30	Session IV: Robust optimization and control methods for industrial applications (Part I) Chair: Prof. Dr.-Ing. Rolf Findeisen, Otto von Guericke University Magdeburg
14:00	15:00	<i>Dr. Ruth Misener</i> Mixed-integer nonlinear optimisation for energy efficiency
15:00	15:15	<i>Johannes Wiebe</i>

		The robust pooling problem
15:15	15:30	<i>Mark Nicholas Jones</i> Monte Carlo based sensitivity analysis and derivative-free optimisation
15:30	16:00	Coffee break
16:00	16:45	Session V: Robust optimization and control methods for industrial applications (Part II) Chair: Prof. Dr.-Ing. Achim Kienle, Otto von Guericke University Magdeburg
16:00	16:15	<i>Tobias B��thge</i> Contract-based robust predictive control in hierarchical systems
16:15	16:30	<i>Cristina Zotica</i> A new perspective on optimal operation and control of heat-to-power cycles
16:30	16:45	<i>Georg Liesche</i> Integrated process synthesis and heat integration exemplified for production of hydrogen cyanide
16:45	17:00	Coffee break
17:00	18:00	Prof. Mieke Boon Future aspects of scientific methodology in the engineering sciences
19:00	23:00	Conference dinner at "Hoflieferant"

March 20, Wednesday		
9:00	10:45	Session VI: Production of chemicals from renewables
9:00	10:00	<i>Dr. Robin J. White</i> Delivering sustainable energy carriers, platform molecules and synthetic oxygenates
10:00	10:15	<i>Hoda Khesali</i> Biological conversion of CO₂ from biogas plant to CH₄
10:15	10:30	<i>Steffen Linke</i> Green solvent selection for the homogeneously catalyzed hydroformylation of long-chain olefins in a thermomorphic solvent system

10:30	10:45	<i>Mei Yun Lai</i> Brine electrolysis as a cross-fertilization technology for a Power-to-X process in an integrated chemical complex: restoring hydrological and carbon cycle
10:45	11:15	Coffee break
11:15	12:30	Session VII: Simulation and experimental investigation of multiphase systems Chair:
11:15	11:30	<i>Hashir Altaf</i> 3D pore network simulation of anode gas diffusion layer (GDL) of electrolyzers and their permeability analysis at high current densities
11:30	11:45	<i>Rasmus Fjordbak Nielsen</i> Particle modelling using advanced image analysis and deep learning
11:45	12:00	<i>Katrin Kelm</i> Impact of pulsed flow characteristics on hydraulic particle transport
12:00	12:15	<i>Prof. Kai Sundmacher, MPI Magdeburg</i> Closing remarks
12:15	12:30	Announcement of poster prize winner
12:30	13:30	Final lunch
13:30	14:30	Closed Session: IMPRS students & staff only
15:00	16:00	Closed Session: IMPRS Board meeting