

Program of the 11th IMPRS Workshop
April 8-10, 2018 in Klosterhotel Wöltingerode, Goslar

as of April 6, 2018

Sunday, April 8, 2018

13:00 – 18:00 Excursion to Goslar
13:00 meeting at Hbf Magdeburg, platform 9
19:00 Dinner at Klosterhotel Wöltingerode

Monday, April 9, 2018

9:30 Welcoming by Andreas Seidel-Morgenstern
9:50 Session 1
11:00 Coffee Break
11:30 Session 2
12:30 Group Picture
12:45 Lunch
14:00 Poster Session
15:30 Coffee Break
16:00 Tridem Talk
afterwards Handout overview credit points
18:00 Dinner
19:00 Students' Discussion

Tuesday, April 10, 2018

9:00 Session 3
10:10 Coffee Break
10:40 Information and discussion about the evaluation on June 19, 2018
12:00 Lunch | Boardmeeting
13:30 Session 4
14:30 Closing remarks by Andreas Seidel-Morgenstern

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Sunday, April 8, 2018

13:00 – 18:00 Excursion to Goslar

Monday, April 9, 2018

7:08 Train from Magdeburg Hbf to Vienenburg (HEX80504), then Bus 822 to Wöltingerode, Goslar

9:07 Arrival in Wöltingerode, Goslar (5 Minutes walk to Klosterhotel Wöltingerode
Wöltingerode 3 in 38690 Vienenburg, phone +49 (0) 5324 - 77 44 611,
www.klosterhotel-woeltingerode.de)

9:30 Welcoming by Andreas Seidel-Morgenstern

9:50 **Session 1 – Chair: João Rodrigues Correia Ramos**

(8'+2') **Adnan Hayat**, MPI - PCF (Prof. Seidel-Morgenstern)
"Forced Periodic Non-isothermal Operation of a Chromatographic Column"

(8'+2') **Bruno Morabito**, OVGU - FEIT - IFAT - SYST (Prof. Findeisen)
"Model predictive control and estimation for multi-modes systems"

(8'+2') **Simon Bechtel**, MPI - PSE (Prof. Sundmacher)
"Development of a novel, energy efficient process for the electrolysis of HCl to Cl₂"

(15'+5') **Reza Mahour**, MPI - BPE (Prof. Reichl)
"In vitro glycoengineering: toward synthetic glycosylation"

(15'+5') **Christian Kallies**, MPI - PCF (Prof. Findeisen)
"Embracing parametric uncertainty in optimal control using Al'brekht's Method"

11:00 *Coffee Break*

11:30 **Session 2 – Chair: Tobias Bähge**

(8'+2') **Patrick-Marcel Lilienthal**, OVGU - FMATH - IMO - MathOpt (Prof. Sager)
"Mathematical modeling in hematopoiesis: Prediction of individual RBC regeneration after blood loss"

(8'+2') **Francesca Cascella**, MPI - PCF (Prof. Seidel-Morgenstern)
"Approaches and Methods for Continuous Preferential Crystallization"

(8'+2') **Shashank Bhandari**, MPI - PCF (Prof. Seidel-Morgenstern)
"Modeling and Simulation of Continuous Crystallization"

(15'+5') **Banafsheh Jabarivelisdeh**, OVGU - FEIT - IFAT - SYST (Prof. Waldherr)
"Model predictive control of a fed-batch bioreactor based on dynamic metabolic-genetic network models"

12:30 *Group Picture*

12:45 *Lunch*

14:00 **Poster Session**
with 2'-Introduction of each poster

15:30 *Coffee Break*

16:00 **Tridem Talk**

Ulrike Krewer & Xiangzhong Xie & Victor N. Emenike
"Process Systems Engineering for the synthesis of active pharmaceutical ingredients"

afterwards *Handout overview credit points*

18:00 *Dinner*

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19:00

Students' Discussion

Tuesday, April 10, 2018

9:00

Session 3 – Chair: Izzat Iqbal Cheema

(8'+2') **Steffen Linke**, MPI - PSE (Prof. Sundmacher)

"Integrated design of thermomorphic solvent systems and separation processes for the efficient recovery of homogeneous catalysts"

(10'+5') **Erdal Aydin**, MPI - PSE (Prof. Sundmacher)

"Tailored Indirect Algorithms for Efficient On-line Optimization"

(10'+5') **Sabine Koch**, MPI - ARB (Prof. Klamt)

"Strategies for Modeling of Large-Scale Metabolic Models of Microbial Communities"

(10'+5') **Seyed Ali Hosseini**, OVGU - FVST - ISUT - LSS (Prof. Thévenin)

"Lattice Boltzmann model for thermal heterogeneous flows"

(10'+5') **Susann Triemer**, MPI - PCF (Prof. Seidel-Morgenstern)

"Utilization of chlorophyll in crude plant extract as highly active reagent in artemisinin synthesis"

10:10

Coffee Break

10:40

Information and discussion about the evaluation on June 19, 2018

12:00

Lunch / Boardmeeting

13:30

Session 4 – Chair: Christoph Trautwein

(8'+2') **Karsten Hans Georg Rätze**, MPI - PSE (Prof. Sundmacher)

"Process Synthesis for Liquid Multiphase Systems"

(8'+2') **Jennifer Uebbing**, MPI - PSE (Prof. Sager)

"Improving the Exergetic Efficiency of Power-to-Methane Processes"

(8'+2') **Valentin Plamenov Chernev**, MPI - PSD (Prof. Kienle)

"Modelling and Control of SMB Chromatographic Process"

(15'+5') **Andreas Himmel**, OVGU - FVST - IVT - SVT (Prof. Sundmacher)

"Dynamic Operation Management of Chemical Plants"

14:30

Closing remarks by Andreas Seidel-Morgenstern

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Poster Presentations

Cheng Chi, OVGU - FVST - ISUT - LSS (Prof. Thévenin)

„An efficient, high-order immersed boundary method for flow simulations around complex geometries“

Izzat Iqbal Cheema, TUBS - FMB - InES (Prof. Krewer)

„Multi-Objective Optimisation of Ammonia Synthesis Reactor System for Power-to-Ammonia“

Sebastian Engel, OVGU - FVST - ISUT - LSS (Prof. Janiga)

„Experimental Validation of a designed Multi-Disk-Pump“

Christoph Trautwein, MPI - CSC (Prof. Benner)

„Uncertain Flow Control Problems“

Markus Jens Kögel, OVGU - FEIT - IFAT - SYST (Prof. Findeisen)

„Distributed set-based state estimation for interconnected, cyber-physical processes“

Jens Bremer, MPI - PSE (Prof. Sundmacher)

„Flexible Production of Synthetic Methane: Dynamic Operation and Control of Fixed-Bed Methanation Reactors“

Tobias Bähge, OVGU - FEIT - IFAT - SYST (Prof. Findeisen)

„Modular Controller Design for Hierarchical Systems using Contracts“

Tao Li, MPI - PCF (Prof. Seidel-Morgenstern)

„Design of continuous solution crystallization of calcium propionate“

Petar Andonov, OVGU - FEIT - IFAT - SYST (Prof. Findeisen)

„Admissible Control Parametrization of Uncertain Finite-time Processes With Application to Li-ion Battery Management“

João Rodrigues Correia Ramos, MPI - BPE (Prof. Reichl)

„Genetic Engineering Outcome Prediction Using Mathematical modeling“

Georg Liesche, MPI - PSE (Prof. Sundmacher)

„Optimization of a High Temperature Catalytic Wall Reactor: Synthesis of Hydrogen Cyanide“

Wei Zhao, MPI - NDS (Prof. Stoll)

„Fast solvers for nonlocal problems“