

ENTRY FEES/REGISTRATION

– Entry fees

- Industry: 690 EUR*
(VAT is not charged according to § 4 No. 22a UStG)
- Research staff (TU Kaiserslautern, Fraunhofer ITWM): free of charge

*The participation fee includes the entitlement to participate in the event, the conference documents, a certificate of participation as well as catering during the workshop and the networking dinner. Invoicing takes place after the event.

– Registration

Please register online by **August 17, 2018**:
www.leistungszentrum-simulation-software.de/DCI



GENERAL INFORMATION

– Contact with regard to scientific program

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– Contact with regard to organization

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– Conference venue

Fraunhofer Institute for Industrial Mathematics ITWM
Fraunhofer-Platz 1
67663 Kaiserslautern
www.itwm.fraunhofer.de

Directions: www.itwm.fraunhofer.de/en/contact

LEISTUNGSZENTRUM
SIMULATIONS- UND
SOFTWARE-BASIERTE
INNOVATION



INTERNATIONAL WORKSHOP MATHEMATICAL METHODS IN PROCESS ENGINEERING – DIGITIZATION IN THE CHEMICAL INDUSTRY

Thursday, September 6 to
Friday, September 7, 2018
Fraunhofer-Zentrum, Kaiserslautern


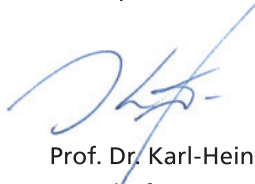
PREFACE

Digitization has become a megatrend in industries and societies of many countries around the world. Mathematical models, algorithms and data science are in the core of this development.

In fall 2018, September 6 to September 7, the Fraunhofer High Performance Center Simulation- and Software-based Innovation will organize an international workshop “Mathematical Methods in Process Engineering – digitization in the chemical industry” with 6 internationally outstanding invited speakers and 12 short contributions from researchers of the Center and industry.

All lectures are invited, and also attendance will require invitation.

The number of invited participants is limited to about 80, which will include selected partners from process industry as well. The conference venue will be the Fraunhofer site at Kaiserslautern. The workshop will provide a unique opportunity for scientific discussions and personal networking between scientists from academia and industrial practice to render and to shape the topics to come in future process engineering.



Prof. Dr. Karl-Heinz Küfer
Fraunhofer ITWM

Prof. Dr.-Ing. Hans Hasse
TU Kaiserslautern

PROGRAM

– Thursday, September 6

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| 10:00 | Registration open, welcome coffee |
| 10:20 | Welcome Prof. Dr. Karl-Heinz Küfer, Prof. Dr.-Ing. Hans Hasse |
| 10:30 | Opening keynote Dr.-Ing. Martin Strohmman, BASF SE |
| SESSION 1 – Session chair: Prof. Dr. Karl-Heinz Küfer | |
| 11:00 | Beyond number 42: A Hitchhiker's Guide to Optimization-based Design of Energy Supply Systems Univ.-Prof. Dr.-Ing. André Bardow, RWTH Aachen (D) |
| 11:50 | Artificial Intelligence in Materials Research - at a Glance Dr. Hergen Schultze, BASF SE |
| 12:15 | Digitalization and Thermodynamic Modeling Prof. Dr.-Ing. Hans Hasse, TU Kaiserslautern |
| 12:45 | Lunch (foyer) |
| SESSION 2 – Session chair: Dr. Michael Bortz | |
| 13:30 | Network Flow Problems with Physical Transport Prof. Dr. Alexander Martin, FAU Erlangen (D) |
| 14:20 | Improving Energy Efficiency of Drinking Water Supply by Multicriteria Optimization Dr. Dimitri Nowak, Fraunhofer ITWM |
| 14:45 | Production Scheduling: Learning from other Industry Sectors Dr. Heiner Ackermann, Fraunhofer ITWM |
| 15:10 | Coffee break (foyer) |
| SESSION 3 – Session chair: Prof. Dr.-Ing. Hans Hasse | |
| 15:50 | Advanced Optimization Strategies for the Next Generation of Computer Aided Process Engineering Prof. Larry Biegler, PhD, Carnegie Mellon, Pittsburgh (USA) |
| 16:40 | Plantwide Modeling and Optimization: Challenges and Industrial Requirements Dr. Kai Dadhe, Evonik Technology & Infrastructure GmbH |
| 17:05 | Supporting Flowsheet Simulation by Machine Learning Dr. Michael Bortz, Fraunhofer ITWM |
| 19:00 | For speakers and external participants: Round table discussions, networking dinner and software demonstrations |

– Friday, September, 7

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| 8:30 | Arrival of participants, welcome coffee |
| SESSION 4 – Session chair: Dr. Raimund Wegener | |
| 8:40 | Recent Developments in Real-time Optimization Prof. Dominique Bonvin, PhD, EPFL Lausanne (CH) |
| 9:30 | Characteristics of a Digital Twin in Process Engineering Dr. Andreas Kröner, Linde AG |
| 9:55 | Adjusting Substance Property Data in an Industrial Context Dr. Johannes Höller, Fraunhofer ITWM |
| 10:20 | Coffee break (foyer) |
| SESSION 5 – Session chair: Dr. Dietmar Hietel | |
| 10:50 | Basics of Reactive Flow in Porous Media Prof. Majid Hassanizadeh, PhD, Utrecht University (NL) |
| 11:40 | Modeling and Simulation of Protein Transport Processes in Chromatographic Media Dr. Sebastian Osterroth, Fraunhofer ITWM |
| 12:05 | Pore Scale Simulation of Reactive Flow in Porous Media Dr. Torben Prill, Fraunhofer ITWM |
| 12:30 | Lunch (foyer) |
| SESSION 6 – Session chair: Prof. Dr. Karl-Heinz Küfer | |
| 13:30 | Nonsmooth Differential-algebraic Equations in Chemical Engineering Prof. Paul Barton, PhD, MIT, Cambridge (USA) |
| 14:20 | Challenges and Opportunities to Improve Process Models by Using Plant Experiments Dr. Norbert Asprion, BASF SE |
| 14:45 | Optimization of Distillation Sequences Dr. Jan Schwientek, Fraunhofer ITWM |
| 15:10 | Wrap up/closing |
| 15:30 | End of the workshop |

Invited speakers

- Univ.-Prof. Dr.-Ing. André Bardow, RWTH Aachen (D)
- Prof. Paul Barton, PhD, MIT, Cambridge (USA)
- Prof. Larry Biegler, PhD, Carnegie Mellon, Pittsburgh (USA)
- Prof. Dominique Bonvin, PhD, EPFL Lausanne (CH)
- Prof. Dr. Alexander Martin, FAU Erlangen (D)
- Prof. Majid Hassanizadeh, PhD, Utrecht University (NL)