

**Summer School  
of the International Doctorate Program**

***Identification, Optimization and Control  
with Applications in Modern Technologies***

**and**

**Meeting of the Elite Programs**

***Identification, Optimization and Control  
with Applications in Modern Technologies***

***Bavarian Graduate School  
of Computational Engineering***

***TopMath***

**Bildungszentrum Freising**

**July 27-29, 2009**

Elite **Network**  
of Bavaria





## **Invited Speakers**

Dipl. Math. Christian Hartwanger  
EADS ASTRIUM GmbH  
Telecommunications Satellites,  
ATS54 Antenna, 81663 Munich

Dr. Andreas Bergmann  
EPCOS AG  
SAW RD BT DT  
Anzinger Strasse 13, 81671 Munich

## **Venue**

Kardinal Döpfner Haus  
Bildungszentrum Freising  
Domberg 27  
85354 Freising  
[www.bildungszentrum-freising.de](http://www.bildungszentrum-freising.de)

## **Excursion**

Leibniz Rechenzentrum  
der Bayerischen Akademie der Wissenschaften  
Boltzmannstraße 1  
Garching bei München

Siemens AG  
Building 33, Room 644  
Munich Perlach



# Program

## Monday, July 27

10:00	Welcome G. Leugering, Erlangen
10:15-11:15	Towards node-based shape optimization: a fictitious energy constraint P. Steinmann, Erlangen
11:15-12:15	Challenges in multiscale modelling of particle systems W. Peukert, Erlangen
12:15-13:30	Lunch
13:30-14:15	Fields of optimization application in the development of satellite antennas C. Hartwanger, EADS ASTRIUM GmbH
14:15-15:00	Modeling, optimization and application of SAW components A. Bergmann, EPCOS AG
15:00-15:30	Coffee Break
15:30-16:00	Model predictive control of hyperbolic and parabolic PDEs N. Altmüller, Bayreuth
16:00-16:30	Controllability aspects of open quantum systems: a Lie-theoretical approach I. Kurniawan, Würzburg
16:30-17:00	Bilateral teleoperation of a planetary rover under communication constraints Zhihao Xu, Würzburg
17:00-17:30	On the global convergence of a primal-dual interior point algorithm for MPECs with an augmented Lagrangian merit function Thorsten Spickenreuther, Bayreuth
18:00	Dinner

**Tuesday, July 28**

## **Excursion**

### **Leibniz Rechenzentrum der Bayerischen Akademie der Wissenschaften**

Boltzmannstraße 1  
Garching bei München

10:00-11:30    Leibniz-Rechenzentrum

## **Workshop**

**Modeling, Simulation and Optimization — Key Competences for Design,  
Management and Operation of Technical Systems**

### **Siemens AG**

Munich Perlach, Building 33, Room 644

- 13:30-13:45    Modeling, Simulation and Optimization at Siemens  
M. Hofmeister, Siemens AG
- 13:45-14:15    Optimizing placement programs for SIPLACE placement systems  
A. Pfaffinger, Siemens AG
- 14:15-15:00    Pedestrian Streams – Modeling, Simulation and Optimization  
M. Davidich, D. Hartmann, Siemens AG
- 15:00-15:15    Break
- 15:15-15:45    Robust Design: The Mathematical Treatment of Uncertainties  
U. Wever, Siemens AG
- 15:45-17:00    Neural Networks in System Identification and Forecasting  
H.G. Zimmermann, Siemens AG
- 17:00-17:30    Discussion
- 19:00            Dinner

## Wednesday, July 29

- 09:00-09:10 International Doctorate Program “Identification, Optimization and Control with Applications in Modern Technologies”  
G. Leugering, Erlangen
- 09:10-09:30 Bavarian Graduate School of Computational Engineering  
H.-J. Bungartz, Munich
- 09:30-10:00 The mortar method for non-matching grids  
S. Sicklinger, T. Both, Munich
- 10:00-10:30 Theta fitter: The financial fitting toolbox  
J. Benk, Munich
- 10:30-11:00 Coffee Break
- 11:00-11:30 Homogenization and variational 2D to 1D dimension reduction in finite elasticity  
S. Neukamm, Munich
- 11:30-12:00 Numerical methods for the computation of generalized Nash equilibria  
A. von Heusinger, Würzburg
- 12:00-13:30 Lunch
- 13:30-14:00 Well-posedness theory and optimal boundary controllability in context of equations of nonlinear acoustics  
Slobodan Veljovic, Erlangen
- 14:00-14:30 Trajectory planning and optimal control for formations of autonomous robots  
M. Saska, Prague
- 14:30-15:00 Motion coordination and control in systems of nonholonomic autonomous vehicles  
M. Hess, Würzburg

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