

**Wednesday, July 26**

**Auditorium Maximum of the Jagiellonian University, ul. Krupnicza 33**

**Plenary session**

**Room A**

- 8.30 H. Maurer  
Theory and Applications of Optimal Bang-Bang and Singular Control Problems
- 9.30 L.T. Biegler  
Efficient Nonlinear Programming Algorithms for Chemical Process Control and Operations

**10.30 Coffee break**

**Room G**

**I.6-6 Control and Optimization of Nonlinear Evolutionary PDE Systems**

**Room B**

- 11.00 G. Auchmuty  
A Variational Approach to Well-posedness for Initial Value Problems
- 11.30 G. Simonett  
On the stability of equilibria for the Stefan problem with surface tension
- 12.00 T. Roubíček  
Incompressible ionized non-Newtonian fluid mixtures
- 12.30 I. Mitrea  
The Neumann Problem for Higher Order Elliptic operators on  $C^1$  domains

**I.8-3 Stability, Sensitivity and Error Analysis for Optimal Control Problems. Control of ODEs**

**Room C**

- 11.00 A.V. Dmitruk  
Refined quadratic order optimality conditions for singular extremals
- 11.30 K. Malanowski  
A characterization of stability and sensitivity properties for state – constrained optimal control
- 12.00 J.F. Bonnans, A. Hermant  
Stability and sensitivity analysis for optimal control problems with a first-order state constraint and application to continuation methods
- 12.30 U. Felgenghauer  
On Lipschitz stable switching behavior of bang-bang extremals in parametric control

**I.11-1 Optimization of Dynamic Systems in Chemical Engineering**

**Room D**

- 11.00 R. Hannemann, A. Hartwich, W. Marquardt, L. Würth  
Adaptive Shooting Methods for Dynamic Optimization - Concepts, Algorithms and Applications
- 11.30 J. Albersmeyer, M. Diehl  
The Lifted Newton Method and its Use for Large Scale Dynamic Optimization and NMPC in Chemical Engineering
- 12.00 M. Kaspereit  
Optimisation Problems in Advanced Operating Modes of Continuous Chromatography
- 12.30 S. Sager, Y. Kawajiri, L.T. Biegler  
On the Optimality of Superstructures for Simulated Moving Beds

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| <b>I.12-1 Modelling, Control and Optimization of Dynamical Systems<br/>Theory and Applications to Biomedicine</b>          |                                                                                                                                                                                                     | <b>Room E</b> |
| 11.00                                                                                                                      | A. Bertuzzi, A. Fasano, A. Gandolfi, C. Sinisgalli<br>Reoxygenation and split-dose response to radiation in a tumour cord model                                                                     |               |
| 11.30                                                                                                                      | H.L. Callender, M.A. Horn<br>Mathematical Modeling of Cellular Signaling in Macrophages Lipid Signaling Kinetics                                                                                    |               |
| 12.00                                                                                                                      | A. d'Onofrio, A. Gandolfi, A. Rocca<br>Population-based models of anti-tumor anti-angiogenesis therapy theory and biomedical inferences                                                             |               |
| 12.30                                                                                                                      | A. Radunskaya, S. Hook<br>Heuristic optimization of a mathematical model of the innate immune response to cancer vaccines                                                                           |               |
| <b>R.2 Modelling of ODE systems</b>                                                                                        |                                                                                                                                                                                                     | <b>Room F</b> |
| 11.00                                                                                                                      | K. Tchoń<br>A cross-road of control theory and robotics The method of endogenous configuration space                                                                                                |               |
| 11.30                                                                                                                      | C. Navasca, A. Asatryan, V. Attarian, Y.R. Huang, K.K. Leung, A. Joshi, V. Voroninski, M. Aboulain, K. McBride<br>Implementations of control laws for motion camouflage in a pursuit-evasion system |               |
| 12.00                                                                                                                      | G. Pillonetto<br>On the identification of time-varying systems in Reproducing Kernel Hilbert Spaces                                                                                                 |               |
| 13.00                                                                                                                      | <b>Lunch</b>                                                                                                                                                                                        | <b>Room G</b> |
| <b>I.6-7 Control and Optimization of Nonlinear Evolutionary PDE Systems</b>                                                |                                                                                                                                                                                                     | <b>Room B</b> |
| 14.30                                                                                                                      | V. Isakov<br>Carleman estimates and its applications to elasticity with residual stress                                                                                                             |               |
| 15.00                                                                                                                      | M. Eller<br>Carleman estimates some first-order systems of partial differential equations                                                                                                           |               |
| 15.30                                                                                                                      | M. Krstic, R. Vazquez<br>Nonlinear boundary control for a class of 1-D nonlinear parabolic PDEs                                                                                                     |               |
| 16.00                                                                                                                      | A.V. Balakrishnan, C. Preda<br>Convolution/Evolution Equations - Representation Theory                                                                                                              |               |
| <b>I.8-4 Stability, Sensitivity and Error Analysis for Optimal Control Problems. Discretization and error estimates II</b> |                                                                                                                                                                                                     | <b>Room C</b> |
| 14.30                                                                                                                      | A. Rösch<br>About nonuniform grids in control constrained optimal control problems                                                                                                                  |               |
| 15.00                                                                                                                      | R. Becker, B. Vexler<br>Optimal Control of the Convection-Diffusion Equation using Stabilized Finite Element Methods                                                                                |               |
| 15.30                                                                                                                      | D. Hömberg, C. Meyer, J. Rehberg, W. Ring<br>Optimal control of the thermistor problem                                                                                                              |               |

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| <b>I.11-2 Optimization of Dynamic Systems in Chemical Engineering</b>                                         |                                                                                                                                                               | <b>Room D</b> |
| 14.30                                                                                                         | E. Kostina<br>Robust Optimum Experimental Design Methods with Application to Parameter Estimation in Chemistry and Chemical Engineering                       |               |
| 15.00                                                                                                         | A. Küpper, S. Engell<br>Optimizing Control of a Reactive SMB Process                                                                                          |               |
| 15.30                                                                                                         | H. Gerbracht, P. Li, L.T. Biegler, W.R. Hong<br>Interior-Point Quasi-Sequential Approach and Application to the Optimization of the Tennessee-Eastman-Process |               |
| 16.00                                                                                                         | J. Åkesson, K.-E. Årzen<br>Tools and Languages for Modeling and Optimization of Large-Scale Dynamical Systems                                                 |               |
| <b>I.12-2 Modelling, Control and Optimization of Dynamical Systems Theory and Applications to Biomedicine</b> |                                                                                                                                                               | <b>Room E</b> |
| 14.30                                                                                                         | A. Świerniak<br>Singular arcs in the optimal antiangiogenic protocols - are they optimal?                                                                     |               |
| 15.00                                                                                                         | U. Foryś, M. Bodnar<br>Modelling of angiogenesis process                                                                                                      |               |
| 15.30                                                                                                         | U.A. Ledzewicz, H. Schättler<br>A comparison of optimal and sub-optimal strategies for models of tumor anti-angiogenesis, part 1                              |               |
| 16.00                                                                                                         | U.A. Ledzewicz, H. Schättler<br>A comparison of optimal and sub-optimal strategies for models of tumor anti-angiogenesis, part 2                              |               |
| <b>R.3 Modelling and optimization of distributed parameter systems</b>                                        |                                                                                                                                                               | <b>Room F</b> |
| 14.30                                                                                                         | K. Eppler, H. Harbracht, R. Schneider<br>On convergence for elliptic shape optimization problems                                                              |               |
| 15.00                                                                                                         | L. J. Álvarez-Vázquez, A. Martínez, M. E. Vázquez-Méndez, M.A. Vilar<br>A shape optimization problem in fishways modeling and numerical resolution            |               |
| 15.30                                                                                                         | R. Schneider, P. Jimack<br>With discrete adjoint based optimisation towards anisotropic adaptive FEM                                                          |               |
| 16.30                                                                                                         | <b>Coffee break</b>                                                                                                                                           | <b>Room G</b> |
| 19.30                                                                                                         | <b>Conference Dinner</b><br><b>Wawel Hill Restaurant, Wawel Hill 9</b>                                                                                        |               |