

HEIDELBERG – PRAGUE WORKSHOP IN ANALYSIS AND NUMERICS
29th April 2015; Carolinum, Small Auditorium, 2nd Floor

The workshop is organized as an activity of Nečas Center for Mathematical Modeling. We thank to RSJ for its support in organising the workshop.

Chairman: Zdeněk Dostál

8:30–9:00 *Peter Bastian* / High-Performance computing for porous media flows
9:05–9:35 *Zdeněk Strakoš* / Operator preconditioning and matrix computations
9:40–10:10 *Guido Kanschat* / Divergence conforming multigrid methods
for coupled incompressible flow

10:15–10:45 coffee break

Chairman: Hans Georg Bock

10:45–11:15 *Vít Průša* / Perspectives on using implicit type constitutive relations
in the modelling of the behaviour of non-Newtonian fluids
11:20–11:50 *Ekaterina Kostina* / Optimization methods for model validation
11:55–12:25 *Jan Kuřátko, Stefan Ratschan* / Numerical optimization for finding error
trajectories of hybrid dynamical systems

12:30–13:30 lunch

Chairman: Miroslav Bulíček

13:30–14:00 *Hans Knüpfner* / Nucleation barriers for the austenite-to-martensite
phase transition
14:05–14:35 *Martin Kružík* / Minimization problems on orientation-preserving
bi-Lipschitz maps
14:40–15:10 *Mathias Maier* / Duality-based model adaptivity in context of multiscale
methods

15:15–15:45 coffee break

Chairman: Willi Jäger

15:45–16:15 *Ondřej Souček* / Modeling of porous flow with strong mechanical coupling
in planetary applications
16:20–16:55 *Yifan Yang* / Modelling and simulation of interactions of reactive flow
with a solid structure leading to volume changes – Application to plaque
formations in arteries



**UNIVERZITA KARLOVA
V PRAZE**



**UNIVERSITÄT
HEIDELBERG**
ZUKUNFT
SEIT 1386

25 Years of Partnership
Univerzita Karlova v Praze – Universität Heidelberg

Invite you to the Opening Ceremony

on 27th April 2015 at 5.00 p.m.
in the Patriotic Hall of the Carolinum

and to panel discussions
on 28th and 29th April 2015.

PROGRAMME

Opening ceremony, 27th April 2015; Carolinum, Patriotic Hall

- 17:00 Opening greetings by the Rectors and Vice-Rectors
Conferring the Decree of Visiting Professor to Prof. Dr. Dr. h.c. mult Willi Jäger
- 17:30 *Chaired by Prof. MUDr. Jan Škrha, DrSc., MBA
(Vice-Rector for International Affairs, Charles University)*
Round Table about potentials and added value of the partnership (participation of the Heidelberg Rector Prof. Dr. Bernhard Eitel, Vice-Rector Prof. Dr. Beatrix Busse, Head of the Office of International Affairs Dr. H. Joachim Gerke, Partnership Coordinator Prof. Dr. Jadranka Gvozdanovic; Rector of Charles University in Prague Prof. MUDr. Tomáš Zima, DrSc., Vice-Rector for European Affairs Prof. PhDr. Lenka Ravná, CSc., Vice-Rector for Education doc. MUDr. Milena Králíčková, PhD., Vice-Rector for Research doc. RNDr. Jan Konvalinka, CSc.)
- 19:00 Opening of the Exhibition „Jan Hus and Prague University“ followed by evening reception, Carolinum, Ground Floor

Colloquium, 28th April 2015; Carolinum, Small Auditorium, 2nd Floor

- 9:00–9:30 *Prof. Dr. Dr. h.c. mult. Peter-Christian Müller-Graff*
The Role of Fundamental Rights in the EU Federal Community of Law
- 9:30–10:00 *JUDr. Ing. Jiří Zemánek, CSc.*
Democracy Legitimacy in the European Union
- 10:00–11:30 Panel Bridging Scales – challenges to mathematics and scientific computing in life sciences and material sciences
(Chaired by Prof. Dr. Dr. h.c. mult Willi Jäger, Prof. Josef Málek and Prof. Dr. Dr. h. c. mult. Hans Georg Bock)**
- 10:00–10:10 *Prof. RNDr. Josef Málek, CSc., DSc. (Mathematical Institute, Prague)*
More than 25 years cooperation in mathematics: Analysis, numerics and computational sciences
- 10:10–11:00 Snapshots
*Prof. RNDr. Miloslav Feistauer, DrSc., Dr. h.c.
(Department of Numerical Mathematics, Prague)*
Wings in the wind — Interactions of fluids and solid structures
*Dr. Martin Heida (PhD programme Heidelberg/Prague,
now TU Dortmund)*
Keeping the feet on the ground — Reactive flow and transport in permafrost soil
Martin Řehoř (PhD programme Prague/Heidelberg)
Producing float glass on computer — Mathematical modeling and numerical challenges
Dr. Petra Pustějovská (PhD programme Prague/Heidelberg, now TU Munich)
Mathematics for joints – Synovial fluids and transport processes through membranes
Marek Netušil (PhD programme Prague/Heidelberg)
Mathematical modeling of soft tissues

- 11:00–11:30 Discussion on new perspectives of Heidelberg-Prague cooperation (Prof. Peter Bastian, Prof. Willi Jäger (chair), Prof. Dr. Dr. h. c. mult. Hans Georg Bock, Prof. Josef Málek, Vít Průša, Prof. Zdeněk Strakoš)
- 11:30–11:45 Coffee break
- 11:45–13:15 Panel Transculturality in the Bronze Age East Mediterranean
(Chaired by Prof. Peter Pavúk; Doc. Dr. Jana Mynářová)**
Prof. Dr. Diamantis Panagiotopoulos
Transculturality as a historical phenomenon and theoretical concept
Prof. Dr. Joseph Maran
The study of early Mediterranean transculturality: Archaeological application
Dr. Maria Anastasiadou
Processes of culture formation in the Aegean: Minoan versus Mycenaean
Johannes Becker
Landscape Painting between Egypt and the Aegean
Priv.-Doz. Dr. Philipp Stockhammer
A transcultural perspective on Aegean-type pottery in the Eastern Mediterranean
Sona Wirghová
A transcultural perspective on material culture from Tiryns
Doc. Dr. Jana Mynářová
Transculturality in the legal system of the Late Bronze Age Levant
- 13:15–14:15 Lunch break; Carolinum, Ground Floor
- 14:15–14:45 *Mgr. Renata Landgráfová, Ph.D.*
Die Unterwelt eines Ägyptischen Priesters: Unterweltsbilder und Texte aus dem Grab des Iufaa in Abusir
- 14:45–15:15 *Prof. Dr. Joachim Friedrich Quack*
Consulting the divine doctor. Invocations to Imhotep in the context of healing
- 15:15–15:45 *Juliane Unger, M.A.*
3000 years of backache—On the edition of Egyptian medical papyri using the example of Papyrus Brooklyn 47.218.75+86
- 15:45–16:00 Coffee break
- 16:00–17:00 Panel Glycobiological aspects of cancer
(Chaired by Prof. Dr. Jürgen Kopitz, Prof. MUDr. Karel Smetana, DrSc.)**
Prof. MUDr. Karel Smetana, DrSc.
How to understand the intercellular crosstalk in cancer
Prof. Dr. Jürgen Kopitz
Glycans and glycan-binding proteins as functional markers in malignancy
- 17:00–17:15 Coffee break
- 17:15–18:00 Panel Added value of the University Partnership for research-oriented teaching
(Chaired by Vice-Rectors of the Universities of Heidelberg and Prague)**