Programme on

"Nonlinear Flows"

May 30 – July 15, 2016

organized by

Eduard Feireisl (Czech Academy of Sciences, Prague), Ansgar Jüngel (TU Vienna), Alexander Mielke (WIAS, Berlin), Giuseppe Savaré (U Pavia), Ulisse Stefanelli (U Vienna)

Workshop 1

"Entropy methods, dissipative systems, and applications"

June 13 – 17, 2016

- **Monday, June 13, 2016**

  08:30 – 09:00 Registration

  09:00 – 09:30 **Yann Brenier**
  From hyperbolic to parabolic systems through nonlinear time rescaling

  09:35 – 10:05 **Dejan Slepčev**
  Euler sprays and Wasserstein geometry of the space of shapes

  10:10 – 10:40 **Christian Kuehn**
  On the interface between analysis and numerics for pattern-forming reaction-diffusion systems

  10:45 – 11:20 *coffee / tea break*

  11:20 – 11:50 **Klemens Fellner**
  On global existence and equilibration of a nonlinear reaction-diffusion system

  11:55 – 12:25 **Laurent Desvillettes**
  Convergence to equilibrium for complex balance reaction diffusion equations with boundary equilibria: an example

  12:30 – 13:00 **Agnieszka Swierczewska-Gwiazda**
  Polymeric flows and transport equation with non-local terms

- **Tuesday June 14, 2016**

  09:00 – 09:30 **Giambattista Giacomin**
  Small noise and long time phase diffusion in stochastic limit cycle oscillators

  09:35 – 10:05 **Eric Carlen**
  Rates of relaxation to steady states for some hypocoercive kinetic equations

  10:10 – 10:40 **Daniel Matthes**
  Spatially discrete fourth order diffusion equations with the correct long-time asymptotics

  10:45 – 11:20 *coffee / tea break*

  11:20 – 11:50 **Eduard Feireisl**
  Entropy methods in compressible fluid modelling

  11:55 – 12:25 **Piotr Gwiazda**
  Measure-valued solutions to compressible models of fluid mechanics

  12:30 – 13:00 **Sebastian Schwarzacher**
  Improved time-differentiability for incompressible p-fluids

- **Wednesday, June 15, 2016**

  09:00 – 09:30 **Irene Fonseca**
  Quantum dots and dislocations: dynamics of materials defects

  09:35 – 10:05 **Gilles Francfort**
  About plastic slips and uniqueness in small strain elasto-plasticity

  10:10 – 10:40 **Paolo Piovano**
  Wulff-shape emergence in graphene

  10:45 – 11:20 *coffee / tea break*

  11:20 – 11:50 **Riccarda Rossi**
  On the WED approach to gradient flows in metric spaces

  11:55 – 12:25 **Jesus Sierra**
  An optimal transportation approach to the Bohmian kinetic equation

  12:30 – 13:00 **Dmitry Vorotnikov**
  Hellinger-Kantorovich gradient flows in spatial population dynamics

- **Thursday, June 16, 2016**

  09:00 – 09:30 **Juan Luis Vazquez**
  Entropy methods for nonlinear diffusion equations of porous medium type. Results and challenges

  09:35 – 10:05 **Edoardo Mainini**
  Gradient flow approach to fractional interaction equations

  10:10 – 10:40 **Christian Schmeiser**
  Hypocoercivity and dominating reaction limit for a reaction-kinetic mode

  10:45 – 11:20 *coffee / tea break*

  11:20 – 11:50 **Gianni Dal Maso**
  Existence and uniqueness of dynamic evolutions for a peeling test in dimension one

  11:55 – 12:25 **Giuliano Lazzaroni**
  A bridging mechanism in the homogenisation of brittle composites with soft inclusions
  12:30 – 13:00 **Manuel Friedrich**
  Korn inequalities for special functions of bounded deformation

- **Friday, June 17, 2016**

  09:00 – 09:30 **Otmar Scherzer**
  Evolution by non-convex flows

  09:35 – 10:05 **Goro Akagi**
  Allen-Cahn type equation with strong irreversibility

  10:10 – 10:40 **Giulio Schimperna**
  On some singular variants of the Cahn-Hilliard model

  10:45 – 11:20 *coffee / tea break*

  11:20 – 11:50 **Julian Fischer**
  Global existence and weak-strong uniqueness of renormalized solutions to entropy-dissipating reaction-diffusion systems

  11:55 – 12:25 **Georgy Kitavtsev**
  Asymptotic decay, rupture and entropy consistent methods for PDEs describing liquid jets and films

  12:30 – 13:00 **Tomáš Roubíček**
  Modelling of various phase transformations in ferroic solids, in particular magnetic shape-memory materials

All talks take place at the ESI, Boltzmann Lecture Hall!