

**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 Giacomini**

*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!**