

Workshop on
“New Trends in the Variational Modeling of Failure Phenomena”
August 20 – 24, 2018

organized by

Elisa Davoli (U Vienna), Manuel Friedrich (U Münster), Riccardo Scala (CMAF - CIO, U Lisbon)

• **Monday, August 20, 2018**

09:00 – 09:30 **Registration**

09:30 – 10:30 **Irene Fonseca**

Mathematical Analysis of Novel Advanced Materials

10:30 – 10:50 *Coffee / Tea Break*

10:50 – 11:25 **Marco Morandotti**

Discrete-to-continuum limits for dislocations: results in one and two dimensions

11:25 – 12:00 **Francesco Solombrino**

Multiscale analysis of singularly perturbed finite dimensional gradient flows: the minimizing movement approach

12:00 – 14:00 *Lunch Break*

14:00 – 14:35 **Riccarda Rossi**

Visco-Energetic solutions to rate-independent systems in finite-strain plasticity and brittle fracture

14:35 – 15:10 **Dorothee Knees**

Convergence analysis of time-discretization schemes for rate-independent systems

15:10 – 15:40 *Coffee / Tea Break*

15:40 – 16:15 **Matteo Negri**

Alternate minimizing schemes for the evolutions of phase-field fractures

• **Tuesday, August 21, 2018**

09:00 – 10:00 **Gilles Francfort**

The ubiquitous role of stability in solids with defects

10:00 – 10:35 **Nicolas Van Goethem**

Around the incompatibility operator and a new model of elasto-plasticity

10:35 – 11:05 *Coffee / Tea Break*

11:05 – 11:40 **Carolin Kreisbeck**

Asymptotic rigidity of layered structures and its applications in homogenization theory

11:40 – 12:15 **Rita Ferreira**

Homogenization in BV of a model for layered composites in finite crystal plasticity

12:15 – 14:15 *Lunch Break*

14:15 – 14:50 **Anja Schlömerkemper**

Homogenization in the passage from discrete to continuous systems - fracture in composite materials

14:50 – 15:20 *Coffee / Tea Break*

15:20 – 15:55 **Barbara Zwicknagl**

Variational models for stress-free martensitic nuclei

• **Wednesday, August 22, 2018**

09:00 – 10:00 **Giovanni Leoni**

A new class of fractional Sobolev spaces

10:00 – 10:35 **Edoardo Mainini**

Atomistic potentials and the Cauchy-Born rule for carbon nanotubes

10:35 – 11:05 *Coffee / Tea Break*

11:05 – 11:40 **Peter Gladbach**

Optimal transport with dynamic density constraint

11:40 – 12:15 **Martin Jesenko**

Non-trivial pinning threshold for an evolution equation involving long range interactions

19:00 – 22:00 **Social Dinner**

• **Thursday, August 23, 2018**

09:45 – 10:20 **Marcello Ponsiglione**

Gamma-convergence of the Heitmann-Radin sticky disc energy to the crystalline perimeter and other variational models for polycrystals

10:20 – 10:50 *Coffee / Tea Break*

10:50 – 11:25 **Lucia De Luca**

A minimization approach to the wave equation on time-dependent domains

11:25 – 12:00 **Ilaria Lucardesi**

Energy release rate and stress intensity factors in planar elasticity in presence of smooth cracks

12:00 – 14:00 *Lunch Break*

14:00 – 14:35 **Alessandro Giacomini**

Local minimality results for the Mumford-Shah functional via monotonicity

14:35 – 15:10 **Martin Kružík**

A phase-field approach to Eulerian interfacial energies

15:10 – 15:40 *Coffee / Tea Break*

15:40 – 16:25 **Caterina Zeppieri**

Stochastic homogenization of free-discontinuity problems

• **Friday, August 24, 2018**

09:00 – 10:00 **Tomáš Roubíček**

Dynamical damage and phase-field fracture models

10:00 – 10:35 **Gianluca Orlando**

A model for damage subject to elastic fatigue

10:35 – 11:05 *Coffee / Tea Break*

11:05 – 11:40 **Viktor Shcherbakov**

Conservation laws and energy release rates for interfacial cracks in fiber-reinforced composites

11:40 – 12:15 **Giuliano Lazzaroni**

On the 1d wave equation in time-dependent domains and the problem of debond initiation

All talks take place at ESI, Boltzmall Lecture Hall!