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PDEs for multiphase advanced materials – ADMAT2012

Palazzone – Cortona (AR) – September 17–21 2012

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PROGRAMME

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Monday 17

09:00-09:15 Opening

09:15-09:55 José Antonio Carrillo, *Blowup and stationary states in aggregation equations*

09:55-10:35 Franck Boyer, *Consistent n-phase Cahn-Hilliard systems and applications to multiphase flows*

10:35-11:00 Coffee break

11:00-11:25 Michela Eleuteri, *Three different approaches to the Souza-Auricchio model for shape memory alloys*

11:25-11:50 Olaf Klein, *Representation of Hysteresis operators for vector-valued inputs by string functions*

11:50-12:30 Claudio Giorgi, *Free energies and phase transitions in materials with hysteresis*

12:30-14:30 Lunch

14:30-15:10 Ulisse Stefanelli, *Finite plasticity Γ-converges to linearized plasticity*

15:10-15:35 Marita Thomas, *A rate-independent model for brittle delamination in thermo-viscoelasticity*

15:35-16:00 Helia Serrano, *Homogenization of laminate single-negative metamaterials*

16:00-16:25 Riccarda Rossi, *Analysis of a degenerating PDE system for phase transitions and damage*

16:25-16:55 Coffee break

16:55-17:20 Alessandro Reali, *An isogeometric collocation method for Cahn-Hilliard phase separation*

17:20-17:45 Stefano Bosia, *Long-time behaviour of a simplified Ericksen-Leslie non-autonomous system for nematic liquid crystal flows*

17:45-18:25 Irena Pawlow, *PDEs for polymer phase separation*

Tuesday 18

09:00-09:40 Barbara Kaltenbacher, *A thermodynamically consistent hysteresis model for ferroelectricity and ferroelasticity, based on Preisach operators and hysteresis potentials*

09:40-10:05 Jana Kopfova, *Non-isothermal cyclic fatigue in an oscillating elastoplastic material with phase transition*

10:05-10:30 Antonio Segatti, *Some remarks on an ultra fast diffusion equation*

10:30-10:55 Takeshi Fukao, *On a variational inequality of Bingham and Navier-Stokes type in three dimension*

10:55-11:15 Coffee break

11:15-11:40 Piotr Rybka, *A sixth order Cahn-Hilliard type equation*

11:40-12:05 Gabriele Witterstein, *Compressible Phase Change Flows and the Existence of Transition Profiles*

12:05-12:45 Pavel Krejčí, *Recent news about modeling water-ice phase transitions*

12:45-14:45 Lunch

14:45-15:25 Wolfgang Dreyer, *Sharp limits of diffuse interface models in the context of energy storage problems*

15:25-16:05 Gianni Gilardi, *Recent results on a singular and possibly degenerate Cahn-Hilliard type system*

16:05-16:30 Stefania Gatti, *A variational approach to a Cahn-Hilliard model in a domain with non-permeable walls*

16:30-17:00 Coffee break

17:00-17:25 Mariagrazia Naso, *Decay of solutions for a thermoelastic mixture*

17:25-17:50 Sandra Carillo, *Free energy functionals and solutions of viscoelasticity problems*

17:50-18:30 Dietmar Hömberg, *Optimal control of multifrequency induction hardening*

Wednesday 19

Special session dedicated to the 65th birthday of Professor Gianni Gilardi

09:00-09:10 *Opening of the Special Session*

09:10-09:50 Giuseppe Geymonat, *The effect of a thin layer of heterogeneities in an elastic structure*

09:50-10:30 Paolo Podio-Guidugli, *Coupling hyperbolic heat conduction with mechanical vibrations and laser-induced defect dynamics in crystalline media: a challenge for the modeler and for the analyst*

10:30-11:00 Coffee break

11:00-11:40 Nobuyuki Kenmochi, *Parabolic variational inequalities with a class of weakly time-dependent constraints and applications*

11:40-12:20 Mauro Fabrizio, *Mathematical modelling of migration and integration*

12:20-13:00 Jürgen Sprekels, *A time discretization for a nonstandard viscous Cahn-Hilliard system*

13:00-15:00 Lunch

15:00-15:40 Giulio Schimperna, *On some Cahn-Hilliard models with nonlinear diffusion*

15:40-16:20 Alain Miranville, *Some equations with logarithmic nonlinear terms*

16:20-16:50 Coffee break

16:50-17:30 Maurizio Grasselli, *Global attractors for Cahn-Hilliard-Navier-Stokes systems with nonlocal interactions*

17:30-18:10 Hans Wilhelm Alt, *An abstract existence theorem to parabolic systems*

18:10-18:20 *Closure of the Special Session*

20:00 Social dinner

Thursday 20

09:00-09:40 Charlie Elliott, *Biomembrane modelling and Reaction and diffusion models for cell motility*

09:40-10:20 Maria Giovanna Mora, *A quasistatic evolution model for perfectly plastic plates derived by Gamma-convergence*

10:20-10:45 Giovanna Bonfanti, *A temperature-dependent model for adhesive contact with friction*

10:45-11:15 Coffee break

11:15-11:40 Monica Conti, *Attractors for processes on time-dependent spaces and applications to the wave equations*

11:40-12:05 Giacomo Canevari, *A phase field model: well-posedness, regularity, and asymptotic behaviour with respect to some special parameters*

12:05-12:45 Antonio DeSimone, *Cell motility*

12:45-14:45 Lunch

14:45-15:25 Toyohiko Aiki, *A two-scale problems as mathematical model for sulfate attack in sewer pipes*

15:25-16:05 Philippe Laurençot, *A phase-field approximation to the Willmore flow with constraints*

16:05-16:30 Gabriela Marinoschi, *Bio-materials and chemotaxis*

16:30-17:00 Coffee break

17:00-17:25 Pierre-Éthienne Druet, *Some problems associated with the second order optimal shape of a crystallisation interface*

17:25-17:50 Thanh Nam Nguyen, *On the omega-limit set for a nonlocal evolution problem*

17:50-18:30 Danielle Hilhorst, *On a parabolic-hyperbolic system for contact inhibition of cell growth*

Friday 21

09:00-09:40 Enrico Valdinoci, *(Non)local phase transitions and minimal perimeter interfaces*

09:40-10:05 Hermenegildo Borges de Oliveira, *Existence for the steady problem of a mixture of two power-law fluids*

10:05-10:30 Serena Dipierro, *Asymptotics of fractional perimeter functionals*

10:30-10:55 Cecilia Cavaterra, *On a 3D isothermal model for nematic liquid crystals accounting for stretching terms*

10:55-11:15 Coffee break

11:15-11:55 Francesco Scavello, *Shape memory effects in thermal retraction of Polyethylene*

11:55-12:20 Sergio Frigeri, *Asymptotic analysis of some isothermal models for nematic liquid crystal flows*

12:20-13:00 Michel Frémond, *Motion of a solid with large deformations*

13:00-13:10 *Closure*

13:10 Lunch