Section 6: Mechanics and Applied Mathematics

Friday, June 29th, 2007

09:00–10:45 Chairwoman: **Sanda Cleja-Ţigoiu**

09:00–09:45	**Nicolaie D. Cristescu**	Dynamic plasticity
10:00–10:45	**Cristian Teodosiu**	Dislocation-Based Constituitve Modelling at Large Plastic Strains

Coffee

11:15–13:00 Chairman: **Nicolaie D. Cristescu**

11:15–12:00	**Gerard A. Maugin**	From Mathematical Physics to Mechanical Engineering
12:15–13:00	**Dorin Ieşan**	Thermal stresses in inhomogeneous porous elastic cylinders

Lunch

15:30–16:00 Chairman: **Gerard A. Maugin**

15:30–16:00	**Sanda Cleja-Ţigoiu**	Finite elastoplasticity with continuously distributed dislocations

Coffee

16:30–18:30 Chairpersons: **Veturia Chiroiu and Cristian Teodosiu**

16:30–17:00	**Oana Cazacu**	On modeling plastic anisotropy and strenght differential effects in hexagonal metals
17:00–17:30	**Marius Cocou**	A variational analysis of a contact interaction problem in viscoelasticity
17:30–18:00	**Cristian Făciu**	Impact-induced adiabatic wave structure in phase transforming materials

| 18:00–18:30 | **Liviu Marin** | A boundary element iterative algorithm for the temperature reconstruction in piecewise smooth domains from incomplete boundary data |

Saturday, June 30th, 2007

09:00–10:45 Chairman: **Horia I. Ene**

| 09:00–09:45 | **H. T. Banks** | Phenomenological to molecular modelling of hysteresis in viscoelastic polymers: elastomers to biotissue |
| 10:00–10:45 | **Doina Ciorănescu** | Homogenization of constrained integral energies by the unfolding method |

C o f f e e

11:15–13:00 Chairwoman: **Doina Ciorănescu**

| 11:15–12:00 | **Florin Diacu** | Saari's conjecture of the n-body problem |
| 12:15–13:00 | **Eugen Grebenikov** | Singular elliptic systems of Gierer-Meinhardt type |

L u n c h

15:30–16:00 Chairman: **H. T. Banks**

| 15:30–16:00 | **Dan Polişevschi** | Homogenization of the thermal flows with first-order jump interfaces |

C o f f e e

16:30–19:00 Chairpersons: **Ruxandra Stavre and Dan Polişevschi**

16:30–17:00	**Gelu Paşa**	Stability results for multi-layer Hele-Shaw flow
17:00–17:30	**Claudia Timofte**	Upscaling in diffusion problems in domains with semipermeable boundaries
17:30–18:00	**Romulus Militaru**	On the modeling of the high Reynolds' number fluid flows by multiple scales method
18:00–18:30	**Teodor Groşan**	Heat transfer in assymetric stagnation flow an a thin cylinder
18:30–19:00	**Mirela Kohr**	Boundary integral equations for a three-dimensional Brinkman flow problem

Monday, July 2$^{\text{nd}}$, 2007

09:00–10:45 Chairman: Dorin Ieşan

09:00–09:45	**Mircea Sofonea**	Recent advances in contact mechanics: modelling and variational analysis of the models
10:00–10:45	**Meir Shillor**	Mathematical models for material damage

C o f f e e

11:15–13:15 Chairman: Mircea Sofonea

11:15–12:00	**Ioan R. Ionescu**	Compressible rigid-visco-plastic fluids: mathematical and numerical challenges
12:15–12:45	**Delia Ionescu-Kruse**	Variational derivation of the Camassa-Holm shallow water equation
12:45–13:15	**Iuliana Oprea**	Dynamics ad bifurcation of waves in the electroconvection of nematic liquid crystals

L u n c h

15:30–16:15 Chairman: Meir Shillor

15:30–16:15	**Izu Vaisman**	Weak Hamiltonian dynamical systems

C o f f e e

16:30–18:30 Chairpersons: Claudia Timofte and Ioan R. Ionescu

16:30–17:00	**Gheorghe Barbu**	The Bayesian approach in computer simulation of a system reliability
17:00–17:30	**Florin Bobaru**	Adaptive refinement in the peridynamics for multiscale material models
17:30–18:00	**Adrian Carabineanu**	A numerical method of $2D$ flow around a flapping airfoil
18:00–18:30	**Mira-Cristina Anisiu**	$3D$ Inverse problem of dynamics

Tuesday, July 3$^{\text{rd}}$, 2007

09:00–11:00 Chairpersons: Florin Diacu and Eugen Grebenikov

09:00–09:30	**Tiberiu Oproiu**	On the motion of artifiacial satellites in a resisting medium
09:30–10:00	**Mihai Popescu**	Sufficient optimality condition in orbital rendez-vous problems
10:00–10:30	**Rodica Roman**	Close binary stellar systems. Consideration on the constants of stellar structure
10:30–11:00	**Mihai Bărbosu**	An inequality in the phase space of the planar three body problem

C o f f e e

11:15–13:05 Chairwoman: Oana Cazacu

11:15–11:45	**Vasile Mioc**	Solar prominence models tackled via the theory of dynamical systems
11:45–12:15	**George Purcaru**	Are the earthquakes predictable?
12:15–12:45	**Veturia Chiroiu**	Deformation of carbon nanotubes by surface van der Waals forces
12:45–13:05	**Mihaela Arsene**	Some theoreticaly aspects of the inverse problem in seismic modelation

L u n c h

15:30–16:00 Chairman: Constantin Fetecău

15:30–16:00	**Ruxandra Stavre**	Asymptotic approach of a fluid-structure interaction problem

C o f f e e

16:30–19:00 Chairpersons: Mirela Kohr and Cristian Făciu

16:30–17:00	**Constantin Fetecău**	Energetic balance for the Reyleigh-Stokes problem of an Oldroyd-B fluid
17:00–17:30	**Victor Ţigoiu**	Non-standard properties in some classes of non-Newtonian fluids
17:30–18:00	**Şerban Rareş Pop**	Free convection in a porous cavity with temperature dependent viscosity and radiation effects

18:00–18:30	**Elena Carcadea**	Theoretical aspects regarding the fluid dynamics in the catalyst layer of a PEM fuel cell
18:30–19:00	**Valentin Butoescu**	A vortex model of a helicopter rotor

Wednesday, July 4th, 2007

09:00–11:00 Chairpersons: Marius Cocou and Mihai Popescu

09:00–09:30	**Marcel Migdalovici**	About integrability of unbound functions in the mechanical modeling
09:30–10:00	**Anca Căpăţînă**	On a class of abstract implicit evolution variational inequalities
10:00–10:30	**Liliana Brăescu**	The effect of the buoyancy and Marangoni forces on the dopant distribution in the case of a single crystal rod grown from the melt by the edge-defined film-fed growth (EFG) method
10:30–11:00	**Loredana Smaranda**	Bloch waves homogenization of a Dirichlet problem in a periodically perforated domain

C o f f e e

11:30–13:00 Chairpersons: Izu Vaisman and Victor Ţigoiu

11:30–12:00	**Dorin Wainberg**	Geometric prequantization of a generalized mechanical system
12:00–12:30	**Carmen Rocşoreanu**	Hopf bifurcation for coupled identical dynamical systems. Applications
12:30–13:00	**Mircea Cazacu**	On the travelling wave motion

L u n c h

15:30–16:00 Chairman: Gelu Paşa

15:30–16:00	**Horia Dumitrescu**	Dynamical stall modelling of airfoils and comparison with experiments

C o f f e e

16:30–18:00 Chairman: **Adrian Carabineanu**

16:30–17:00	**Simona Roatesi**	Mathematical modeling of coupled chemical-mechanical interactions for shale
17:00–17:30	**A. K. Haghi**	A Langrangian for deflection of Rhombic Plate
17:30–18:00	**Richard Selescu**	An intrinsic study on a certain flow of an inviscid compressible fluid, with extension to some cases in magneto-plasma dynamics