

The XXXIInd "Caius Iacob" Conference
on
Fluid Mechanics and its Technical Applications

Bucharest, 16-17 October 2009

organizers

"Gheorghe Mihoc-Caius Iacob" Institute of Mathematical Statistics and Applied Mathematics of Romanian Academy

University of Bucharest

"Elie Carafoli" National Institute for Aerospace Research-INCAS

Politehnica University of Bucharest

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Dr. Horia ENE
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Dr. Mircea LUPU
Dr. Alexandru MOREGA
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Dr. Adrian CARABINEANU
Dr. Stelian ION
Dr. Richard ȘELESCU

Secretaries

Elena Nebancea
Marilena Ghemuleț
Claudia Dobre

General Schedule

Friday 16 October 2009

08.30-09.30	Registration		
09.30-10.30	Opening Ceremony, Room "Elie Carafoli"		
10.30-11.00		<i>Coffee Break</i>	
11.00-13.00	Communications		
	Section I	Section I	Section III
	Mathematical Modeling & Numerical Simulations Room "Elie Carafoli"	Mathematical Modeling & Numerical Simulations Room "Alexe Marinescu"	Technical Applications Room "Nicolae Tipei"
13.00-14.30		<i>Lunch Break</i>	
14.30-16.30	Communications		
	Section I	Section II	Section III
	Mathematical Modeling & Numerical Simulations Room "Elie Carafoli"	Dynamical Systems Room "Alexe Marinescu"	Technical Applications Room "Nicolae Tipei"
16.30-17.00		<i>Coffee Break</i>	
17.00-18.20	Communications		
	Section I	Section II	Section III
	Mathematical Modeling & Numerical Simulations Room "Elie Carafoli"	Dynamical Systems Room "Alexe Marinescu"	Technical Applications Room "Nicolae Tipei"
19.00		<i>Banquet</i>	

Scientific Communications

Mathematical Modeling&Numerical Simulation

Friday, 11.00-13.00 Room "Elie Carafoli"

Chairman **Adrian Carabineanu, Mircea Lupu**

- 1 *An Extension of Hugoniot-Rankine Relations for Nonreacting and Reacting Flows Considering the Variation of Specific Heats with Temperature*
Corneliu Berbente and Sorin Berbente
- 2 *Physical mechanism of stall delay*
Horia Dumitrescu and Vladimir Cardoso
- 3 *Intrinsic analytic study on an isoenergetic flow of a compressible fluid. Part I: "Isentropic" and "zero-work" surfaces in aero-gas dynamics*
Richard Şelescu
- 4 *Intrinsic analytic study on an isoenergetic flow of a compressible fluid. Part II: Extension to some cases in magneto-plasma dynamics*
Richard Şelescu
- 5 *Ice accretion simulation on NACA-0012*
Alexandrescu Maria and Alexandrescu Nicuşor
- 6 *A Numerical Analysis of Combustion process in an Axisymmetric Chamber*
Al. Dumitrache, F. Frunzulică, and H. Dumitrescu

Mathematical Modeling&Numerical Simulation

Friday, 14.30-16.30 Room "Elie Carafoli"

Chairman **Corneliu Berbente, Horia Dumitrescu**

- 7 *Direct and inverse methods in optimization of lifting profiles*
Mircea Lupu
- 8 *Seepage from Watercourses*
Adrian Carabineanu
- 9 *Mathematical Modelling of a Giant Unilamellar Vesicle under Positive Osmotic Pressure*
Dumitru Popescu, Alin Gabriel Popescu, and Ecaterina Mărieş
- 10 *An Elastic Model of a Textile Surface*
Valentin Butoescu
- 11 *An unsteady free-Wake Vortex Particle model for Horizontal Axis Wind Turbine*
Florin Frunzulică, Alexandru Dumitrache, Horia Dumitrescu, Vladimir Cardoso
- 12 *Similar Solutions for a Coanda Flow*
O. Preotu, Al.Dumitrache, and H. Dumitrescu

Mathematical Modeling&Numerical Simulation

Friday, 17.00-18.20 Room "Elie Carafoli"

Chairman **Valentin Butoescu, Richard Şelescu**

13 *Simulating acoustic perturbations in a 2D unbounded domain*

Văcar Ion-Alexandru

14 *Arclength Continuation for Implicitly Defined Curves*

Ştefan Cruceanu

15 *Self-Propulsion of Oscillatory Thin Profiles. An Analytical Approach*

Stelian Grădinaru

16 *The Generalized Rayleigh Waves in Isotropic Semi-Infinite Plane Subject to Initial Fields*

Iulian Ana

Mathematical Modeling&Numerical Simulation

Friday, 11.00-13.00 Room "Alexe Marinescu"

Chairman **Andrei Halanay, Mihai Popescu**

17 *Finite Element Modeling of Blood Flow*

Alexandru Morega and Alin Dobre

18 *Visualization and Numerical Computing in Fluid Mechanics used as Training Method for Phd Students*

C.M. Bălan, R. Kadar, C. Mărculescu, Ting Ouyang, Diana Broboană, C. Bălan

19 *A Numerical Algorithm to Solve Generalized Navier-Stokes Equations*

Stelian Ion

20 *A Numerical Study of Laminar Flow Past Two Circulating Spheres in Tandem*

Gheorghe Juncu, Aurelian Nicola, and Constantin Popa

21 *Electric motor frame cooling—a finite element analysis*

Aurel Chirilă and Alexandru M. Morega

22 *Heat Transfer by the aluminum electrolysis cell shell*

Marin V. Petre and Alexandru M. Morega

Dynamical Systems

Friday, 14.30-16.30 Room "Alexe Marinescu"

Chairman Gh. Juncu, Al. Morega

- 23 *Stability Analysis for a Nonlinear Model of a Hydrostatic Electrohydraulic Acuator*
A. Halanay and I. Ursu
- 24 *A hydrodynamic model for a P.E.M. fuel cell*
Anca Căpățînă, H. Ene, G. Pașa, D. Polișevski, Ruxandra Stavre
- 25 *Totally Singular Control for Nonlinear System with Parameters*
Mihai Popescu
- 26 *Sufficient Conditions for Existence of the Solution of Linear Two-Point Boundary Problem in Minimization of Quadratic Functional*
Mihai Popescu
- 27 *Stability problems in dynamic response of an elastic plane*
Daniela Baran and Nicolae Apostolescu
- 28 *Study of the equilibrium stability for a tracking hydraulic system*
Olivia Florea

Dynamical Systems

Friday, 17.00-18.00 Room "Alexe Marinescu"

Chairman Daniela Baran, Gelu Pașa

- 29 *A Uniqueness Problem in Abstract Nonlinear Kinetic Theory*
C.P.Grunfeld and D.Marinescu
- 30 *Asymptotic Analysis of a Degenerate Evolution System*
C. Timofte
- 31 *On Banach dynamical systems*
Maria Joița

Technical Applications

Friday, 11.00-13.00 Room "Nicolae Tîpei"

Chairman **Marius Stoia-Djeska, Iosif Țăposu**

- 32 *Aquaplaning of the Airplane*
Mircea Dimitrie Cazacu, Dan Andrei Andreian, and Bogdan Andreian
- 33 *Noise Metric for High-Lift-Low-Noise Concept Validation*
Cătălin Nae
- 34 *Passive Flow Control Around Slender Structures*
M. G. Cojocaru, Carmen-Anca Safta, and M. Stoia-Djeska
- 35 *Optimization and Stability Issues in Simulating the Running Regimes of the Jet Engines*
Irina Carmen Andrei and Virgil Stanciu
- 36 *Jet Engines Thrust Control System Analysis*
Irina Carmen Andrei, Mihai Barbelian, and Gabriela Liliana Stroe
- 37 *Application of Visualization Methods in Aeronautics and Civil Engineering*
Ion Lăncrănjan and Ionuț Brînză

Technical Applications

Friday, 14.30-16.30 Room "Nicolae Tîpei"

Chairman **Mircea Cazacu, Cătălin Nae**

- 38 *About the Low Drag of Dolphin Profiles at Supersonic Speeds*
Iosif Țăposu
- 39 *The effect of saturation and speed limiter on the longitudinal command in the approaching phase of flight for landing*
Ionel-Cristinel Iorga and Achim Ioniță
- 40 *Linear Eddy Model Numerical Simulation of the Turbulent Flow in a Round Turbulent Jet*
Cristian Cărlănescu, Ionuț Porumbel and Constantin E. Hrițcu
- 41 *The influence of saturation and speed limiter concerning the aileron control on roll motion*
Claudia-Alice State and Achim Ioniță
- 42 *Advanced composite wing for competition models*
Mihai Victor Pricop
- 43 *Mortar round launch simulation*
Mihai Victor Pricop and Nicolae Marin

Technical Applications

Friday, 17.00-18.00 Room "Nicolae Tîpei"

Chairman Corneliu Bălan, Irina Carmen Andrei

- 44 *Analysis of aerodynamic field and noise from a ducted wind turbine*
Mihai Leonida Niculescu
- 45 *Computational Fluid Dynamics Analysis of Flow over a Re-Entry Blunt
Body*
Andreea Bobonea