

# X Workshop on Partial Differential Equations : Theory, Computation and Applications

IMPA, August 06 -10 , 2007

## Programa / Schedule

	Monday 6		Tuesday 7		Wednesday 8		Thursday 9		Friday 10	
8:00	Inscrições/Registration									
	Abertura/Opening									
	Aud. I	Aud. II	Aud. I	Aud. II	Aud. I	Aud. II	Aud. I	Aud. II	Aud. I	Aud. II
9:00 10:00	DAFERMOS	-----	SCHECTER	-----	ZUMBRUN	-----	MENZALA	ABDULLAEV	PAULUIS	-----
10:00 10:30	Poster Session (Hall, second floor) - Coffee Break									
10:30 11:30	LAFORCE	MILEWSKI	SANTOS	EFENDIEV	DUFOUR	A. BUSH	MEDEIROS	KRAENKEL	PEREIRA	TABAK
11:30 12:00	LAMBERT	RUIZ ZÁRATE	SOUZA	GALVIS	MOZOLEVSKI	NACHBIN	CARETTA	ALFARO	MOTA	RAUPP
12:00 13:45	Lunch									
14:00 15:00	ABLOWITZ	-----	PALMEIRA	-----	HUPPERT	-----	MAILYBAEV	MANNA	VALINO	TURNER
15:00 15:30	ABREU	MADUREIRA	ALVAREZ	SCHAERER	AZEVEDO	AKERS	MATOS	PRIIMENKO	CONCEIÇÃO	VALÉRIO
15:30 16:00	Poster Session (Hall, second floor) - Coffee Break									
16:00 17:00	ZUMBRUN COURSE Room 224	-----	ZUMBRUN COURSE Room 224	-----	FURTADO	J. BUSH	CHAPIRO SCHECTER	-----	CLOSURE	-----
17:00 18:00	SCHECTER COURSE Room 224	-----	SCHECTER COURSE Room 224	-----	SCHECTER COURSE Room 224	-----	COURSE Room 224	-----	-----	-----
18:00	-----	-----	-----	-----	SOCIAL EVE NT Room 236		-----	-----	-----	-----

# MONDAY – SEGUNDA-FEIRA 8/6/2007

8:00	Inscrições/Registration	
8:45	Abertura/Opening ( <i>Aud. I</i> )	
	Auditorium I	Auditorium II
9:00 10:00	C. M. Dafermos – Brown University, Providence - “Hyperbolic Balance Laws with Dissipation”	
10:00 10:30	Coffee Break	
10:30 11:30	T. LaForce – University of Wyoming, USA - “Semi-Analytical Solutions for Four -Component Gas/Water/Oil Displacements in One Dimension”	Paul Milewski - University of Wisconsin at Madison, USA - “A Model for Swarming with Asymmetric Sensing”
11:30 12:00	W. Lambert , Instituto Nacional de Matemática Pura e Aplicada, Brazil - “Transfer of Mass Components with Phase Change in Porous Media: Analytical and Numerical Solutions”	Ailín Ruiz de Zárate - Instituto Nacional de Matemática Pura e Aplicada, Brazil - “A Reduced Model for Internal Waves Interacting with Bottom Topography at Intermediate Depth”
12:00 13:45	Lunch	
14:00 15:00	Mark J. Ablowitz – University of Colorado, USA - “Dispersive Shock Waves”	
15:00 15:30	E. Abreu - Instituto Nacional de Matemática Pura e Aplicada, Brazil - “Numerical Simulation of Three-Phase Immiscible Flows in Heterogeneous Petroleum Reservoirs”	Alexandre L. Madureira – Laboratório Nacional de Computação Científica, Brazil - “A Multiscale Method for PDEs in Domains with Rough Boundaries”
15:30 16:00	Coffee Break	
16:00 17:00	Kevin Zumbrun - Indiana University, USA – COURSE - “Numerical Evans Function Evaluation”	
17:00 18:00	Stephen Schecter – North Carolina State University - NCSU, USA - COURSE - “Stability of Fronts in Gasless Combustion”	

## TUESDAY – TERÇA-FEIRA 8/7/2007

	Auditorium I	Auditorium II
9:00 10:00	<b>Stephen Schecter</b> – North Carolina State University - NCSU, USA - “ <i>Stability of Patterns in Viscous Conservation Laws</i> ”	
10:00 10:30	<b>Poster Session (Hall, second floor) - Coffee Break</b>	
10:30 11:30	<b>Marcelo Santos</b> - UNICAMP, Brazil - “ <i>Propagation of Singularities in Solutions of Multidimensional Navier-Stokes Equations for Compressible Flow</i> ”	<b>Yalchin Efendiev</b> – Texas A& M University, USA - “ <i>Multiscale Finite Element Methods for Flows in Heterogeneous Porous Media</i> ”
11:30 12:00	<b>A. J. de Souza</b> - Universidade Federal de Campina Grande, Brazil - “ <i>The Wave Structure For a Solid Fuel In-Situ Combustion in a Porous Medium</i> ”	<b>Juan Galvis</b> – Instituto Nacional de Matemática Pura e Aplicada, Brazil - “ <i>A Neumann-Neumann Method for DG Discretization of Elliptic Problems on Geometrically Non-Conforming Substructures</i> ”
12:00 13:45	<b>Lunch</b>	
14:00 15:00	<b>Carlos Frederico Palmeira</b> - Pontificia Universidade Católica Rio de Janeiro, Brazil “ <i>Topology of Fundamental Solutions for Pairs of Quadratic Conservation Laws</i> ”	
15:00 15:30	<b>Amaury Alvarez Cruz</b> - Instituto de Oceanologia, Cuba - “ <i>Stability, Analyticity and Monotonicity of the Filtration Function for Flow in Porous Media</i> ”	<b>Christian E. Schaerer</b> - Instituto Nacional de Matemática Pura e Aplicada, Brazil - “ <i>Block Iterative Algorithms for the Solution of Parabolic Optimal Control Problems</i> ”
15:30 16:00	<b>Poster Session (Hall, second floor) - Coffee Break</b>	
16:00 17:00	<b>Kevin Zumbrun</b> - Universidade Estadual do Norte Fluminense, Brazil - COURSE - “ <i>Numerical Evans Function Evaluation</i> ”	
17:00 18:00	<b>Stephen Schecter</b> – North Carolina State University - NCSU, USA - COURSE - “ <i>Stability of Fronts in Gasless Combustion</i> ”	

## WEDNESDAY – QUARTA-FEIRA 8/8/2007

	Auditorium I	Auditorium II
9:00 10:00	<b>Kevin Zumbrun</b> - Indiana University, USA – <i>“Numerical Determination of Stability of Viscous Shock Waves”</i>	
10:00 10:30	<b>Coffee Break</b>	
10:30 11:30	<b>Steven Dufour</b> – Ecole Polytechnique de Montréal, Canada - <i>“The Numerical Modeling of the Flow of Polymeric Liquids”</i>	<b>Andrew Bush</b> – Canadian Meteorological and Oceanographic Society, Canada - <i>“Coupled Atmosphere-Ocean Dynamics and the Climatic Response to Hypo-and Hyperpycnal Flood Events”</i>
11:30 12:00	<b>Igor Mozolevski</b> - Pontificia Universidade Católica do Rio de Janeiro, Brazil - <i>“Discontinuous Galerkin Finite Element Methods for Heterogeneous Coupling of Elliptic Equations”</i>	<b>André Nachbin</b> - Instituto Nacional de Matemática Pura e Aplicada, Brazil - <i>“An Optimal Boussinesq Model for Shallow Water Wave-Microstructure Interaction”</i>
12:00 13:45	<b>Lunch</b>	
14:00 15:00	<b>Herbert E. Huppert</b> - University of Cambridge, UK - <i>“A Mathematical View of Solidification”</i>	
15:00 15:30	<b>Arthur V. F. Azevedo</b> - Universidade de Brasília, Brazil - <i>“The Riemann Solution of Quadratic Models for Three-Phase Immiscible Flow in Porous Media”</i>	<b>Benjamin Akers</b> - University of Wisconsin, USA – <i>“Dynamics of Solitary Gravity-Capillary Waves on Infinite Depth”</i>
15:30 16:00	<b>Coffee Break</b>	
16:00 17:00	<b>Frederico Furtado</b> - Universidade de Brasília, Brazil - <i>“Riemann Solutions of Water-Alternating-Gas Oil Recovery”</i>	<b>John Bush</b> - MIT, USA – <i>“Surface Tension in Biology”</i>
17:00 18:00	<b>Stephen Schecter</b> – North Carolina State University - NCSU, USA - COURSE - <i>“Stability of Fronts in Gasless Combustion”</i>	
18:00 21:00	<b>Social Event (room 236)</b>	

# THURSDAY – QUINTA-FEIRA 8/9/2007

	Auditorium I	Auditorium II
9:00 10:00	<b>Gustavo Perla Menzala</b> - LNCC/MCT and UFRJ, Brazil - <i>“Mathematical Models in Piezoelectricity: Analysis and Exact Control”</i>	<b>F. Kh. Abdullaev</b> - IFT,UNESP, Brazil; FTI,UzAS, Tashkent, Uzbekistan - <i>“Modulational Instability of Matter Waves under Feshbach Resonance Management”</i>
10:00 10:30	<b>Poster Session (Hall, second floor) - Coffee Break</b>	
10:30 11:30	<b>L. A. Medeiros</b> - Universidade Federal do Rio de Janeiro/UFRJ, Brazil - <i>“Operators of BBM Type in Domains with Moving Boundary”</i>	<b>Roberto A. Kraenkel</b> – Universidade Estadual Paulista, Brazil - <i>“An Exact Equation for the Free Surface of a Fluid in a Porous Medium”</i>
11:30 12:00	<b>Bianca M. C. Caretta</b> - Universidade Federal de Campina Grande, Brazil - <i>“Local Existence of Solution of a Three-Phase Field Model for Solidification”</i>	<b>Daniel G. Alfaro Vigo</b> - Instituto Nacional de Matemática Pura e Aplicada, Brazil - <i>“Time Reversal for Inclusion Detection in Randomly Layered Media”</i>
12:00 13:45	<b>Lunch</b>	
14:00 15:00	<b>A. A. Mailybaev</b> – Moscow State University, Russia - <i>“In Situ Combustion in Porous Medium Containing Solid and Liquid Fuels”</i>	<b>M. A. Manna</b> – Université Montpellier II, France - <i>“The Surface Water Wave Problem and the Green-Naghdi Approximation”</i>
15:00 15:30	<b>V. Matos</b> - Universidade do Porto, Portugal - <i>“Non Local Structure of Riemann Solutions in Two Conservation Laws”</i>	<b>Viatcheslav Priimenko</b> – Universidade Estadual Norte Fluminense, Brazil - <i>“An Inverse Problem for a Model Electromagnetoelasticity System”</i>
15:30 16:00	<b>Coffee Break</b>	
16:00 16:30	<b>Grigori Chapiro</b> - Instituto Nacional de Matemática Pura e Aplicada, Brazil - <i>“Non-Diffusive Combustion Waves in Insulated Porous Media”</i>	
16:30 17:30	<b>Stephen Schecter</b> – North Carolina State University - NCSU, USA - COURSE - <i>“Stability of Fronts in Gasless Combustion”</i> Room 224	

# FRIDAY – SEXTA-FEIRA 8/10/2007

	Auditorium I	Auditorium II
9:00 10:00	<b>Olivier Pauluis</b> – University of Washington, USA - <i>“Propagation, Reflection and Transmission of Precipitation Fronts in the Tropical Atmosphere”</i>	
10:00 10:30	<b>Coffee Break</b>	
10:30 11:30	<b>Felipe Pereira</b> - IPRJ, Brazil - <i>“A CFL-Free Lagrangian Approximation Scheme for Nonlinear Conservation Laws”</i>	<b>Esteban G. Tabak</b> Courant Institute of Mathematical Sciences, USA - <i>“Is the Global Shape of the Tropopause Due to Diurnal Forcing?”</i>
11:30 12:00	<b>Jesus Carlos da Mota</b> – Universidade Federal de Goiás, Brazil - <i>“Existence and Uniqueness of Strong Traveling Wave Solution for a Combustion Problem in Porous Media”</i>	<b>Carlos Frederico M. Raupp</b> – Universidade de São Paulo, Brazil - <i>“Resonant Wave Interactions in the Presence of a Diurnally Varying Heat Source”</i>
12:00 13:45	<b>Lunch</b>	
14:00 15:00	<b>Baldomero Valiño Alonso</b> – Universidad de La Habana, Cuba - <i>“Hugoniot-Maslov Chains of Shock Waves in Conservation Laws with Polynomial Flow. Numerical Simulations.”</i>	<b>Cristina Turner</b> – Universidad Nacional Cordoba, Spain - <i>“Non Linear Stability of Two-Layer Flows.”</i>
15:00 15:30	<b>Duilio Conceição</b> – Universidade Federal do Espírito Santo, Brazil - <i>“Balancing Domain Decomposition Methods for Advection-Diffusion Equation”</i>	<b>Juliana Vianna Valério</b> - PUC-Rio, Brazil - <i>“Efficient Method to Evaluate the Spectrum of Incompressible Viscous Flows”</i>
15:30 16:00	<b>Closure</b>	