

Proceedings of Symposia in **APPLIED MATHEMATICS**

Volume 67, Part 2

Hyperbolic Problems: Theory, Numerics and Applications

Contributed Talks

Proceedings of the Twelfth International
Conference on Hyperbolic Problems

June 9–13, 2008

Center for Scientific Computation
and Mathematical Modeling

University of Maryland, College Park

Eitan Tadmor

Jian-Guo Liu

Athanasios Tzavaras

Editors



American Mathematical Society

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American Mathematical Society
Providence, Rhode Island

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Preface

The International Conference on “Hyperbolic Problems: Theory, Numerics and Applications”, HYP2008, was held in the University of Maryland on June 9-13, 2008. This was the twelfth meeting in the biennial international series of HYP conferences which originated in 1986 at Saint-Etienne, France, and over the last twenty years has become one of the highest quality and most successful conference series in Applied Mathematics.

More than 220 participants from 26 countries attended the HYP2008 conference. It provided a unique forum to exchange and stimulate new ideas from different avenues in academia, industry and government labs. The conference has brought together leading researchers from different disciplines to address theoretical, modeling and computational issues in solving hyperbolic PDEs arising from a variety of applications. Their lectures and the full HYP2008 program can be found at the conference website <http://www.hyp2008.umd.edu/speakers.htm>. Among the HYP2008 participants there were 40 young researchers that were provided with financial support to attend the conference, and we would like to acknowledge in this context the generous support for HYP2008 provided by the sponsors listed below.

A forum on “Open Challenges” was held as part of the HYP2008 program. Led by Thanos Tzavaras, panel members Denis Serre, Peter Markovich, Tai-Ping Liu, François Golse and Randy LeVeque reflected on possible future research directions. Promoting new cross disciplinary interactions among researchers and practitioners could prove to be the ultimate success of HYP2008.

A highlight of HYP2008 was the conference banquet with the keynote speech delivered by Professor Constantine Dafermos. Professor Dafermos is credited with many pioneering contributions for the theory of hyperbolic equations and it was indeed a unique occasion to share his excellent review of the early days as well as his projections into the future of the field.

More than eighty contributions were assembled in this two-volume book, reflecting the high-level quality presentations made in HYP2008, while covering a diverse range of topics in theory, numerics and applications assembled under the umbrella of “hyperbolic problems”.

We take this opportunity to thank the members of the HYP2008 Scientific Committee (listed at <http://www.hyp2008.umd.edu/organization.htm#sc>) for their expertise in selection of invited speakers and reviewing the contributed papers for these volumes. Finally, we would like to express our appreciation to Agi Alipio, William Burns and Jean LaFonta from the Center for Scientific Computation and Mathematical Modeling in the University of Maryland, for their dedicated work on

HYP2008: Ms. Alipio as the coordinator of HYP2008, Mr. Burns as the system administrator, and Mr. LaFonta who was in charge of the local organization and assembling these proceeding, have all made a truly exceptional work.

Eitan Tadmor, Jian-Guo Liu, Thanos Tzavaras

University of Maryland, College Park

May 2009

List of Sponsors

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- Center for Scientific Computation and Mathematical Modeling, University of Maryland
- Department of Mathematics, University of Maryland
- Air Force Office of Scientific Research (AFOSR)
- Fields Institute
- Institute for Mathematics and its Applications, through its Participating Institution Program
- Institute for Physical Science and Technology, University of Maryland



HYP 2008

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List of all HYP2008 Participants

Name	Affiliation	Status
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Fabio Ancona	University of Bologna	invited speaker
Stuart Antman	University of Maryland	participant
Paolo Antonelli	University of L'Aquila	participant
Paul Arminjon	University of Montreal	participant
Agissilaos Athanassoulis	INRIA	participant
Prashant Athavale	University of Maryland	student
Jorge Balbas	California State University, Northridge	participant
Weizhu Bao	National University of Singapore	invited speaker
Sylvie Benzoni-Gavage	University of Lyon 1	plenary speaker
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Animikh Biswas	University of North Carolina-Charlotte	participant
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Jerome Breil	CELIA	participant
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Raimund Bürger	Universidad de Concepción	participant
Miroslav Cada	Seminar for Applied Mathematics	participant
Tony Chan	NSF (National Science Foundation)	participant
Grigori Chapiro	Instituto de Matematica Pura e Aplicada - IMPA	student
Li Chen	Tsinghua University	participant
Gui-Qiang Chen	Northwestern University	plenary speaker
Shuxing Chen	Fudan University	plenary speaker
Jing Chen	City University of Hong Kong	student
Juan Cheng	Institute of applied physics and computational mathematics	participant
Bin Cheng	University of Michigan	participant
Alina Chertock	North Carolina State University	invited speaker
Kyu Yong Choi	UMCP	participant
Cleopatra Christoforou	University of Houston	invited speaker
Rinaldo Colombo	Brescia University	participant
Jeffery Cooper	University of Maryland	participant
Anibal Coronel	Universidad del Bio-Bio	participant
Gianluca Crippa	University of Parma	participant
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Andreas Dedner	University of Freiburg	invited speaker
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Roger Denlinger	US Geological Survey	participant
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Oleg Diyankov	Neurok Software LLC	participant
Carlotta Donadello	SISSA-ISAS	student
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Jörn Frings	RWTH Aachen	participant
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Saul Teukolsky	Cornell University	plenary speaker
Benjamin Texier	Université Paris-Diderot (Paris VII)	participant
Manuel Tiglio	University of Maryland	participant
Dmitry Tkachev	Institute of Mathematics	participant
Manuel Torrilhon	ETH Zürich	participant
Andrea Tosin	Istituto per le Applicazioni del Calcolo "Mauro Picone" - Consiglio Nazionale delle Ricerche	student
Rony Touma	Lebanese American University	participant
Konstantina Trivisa	University of Maryland	participant
Suman Tumuluri	Université Paris VI	student
Athanasios Tzavaras	University of Maryland	co-chair
Yoshihiro Ueda	Graduate School of Mathematics, Kyushu University	student
Suleyman Ulusoy	University of Oslo	participant
Stefan Vater	Freie Universität Berlin	student
Knut Waagan	National Center for Atmospheric research	participant
David Wagner	University of Houston	participant

Dehua Wang	University of Pittsburgh	participant
Dongming Wei	University of Maryland	participant
Xin Wen	Institute of Computational Mathematics, Chinese Academy of Sciences	participant
Michael Westdickenberg	Georgia Institute of Technology	participant
Daniel Wright	ETH, Zürich	participant
Hao Wu	University of Wisconsin - Madison	student
Bokai Yan	University of Wisconsin - Madison	student
Xu Yang	University of Wisconsin-Madison	student
Shantia Yarahmadian	Indiana University	student
Wenjun Ying	Duke University	participant
Jim Yorke	University of Maryland	participant
Shih-Hsien Yu	National University of Singapore	participant
Mei Zhang	City University of Hong Kong	student
Linbao Zhang	University of Maryland	student
Kun Zhao	Georgia Institute of Technology	student
Yuxi Zheng	Penn State University	participant
Weigang Zhong	Statistical and Applied Mathematical Sciences Institute/NC State Univ.	participant

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