

November 30, 2022

## Curriculum Vitae

**Eitan TADMOR**

**Distinguished University Professor**

University of Maryland, College Park

*Mail:* Department of Mathematics, University of Maryland, College Park, MD 20742-3289 USA



<https://www.math.umd.edu/~tadmor>



tadmor@umd.edu

### Personal Data

*Born:* May 4, 1954, Jerusalem, Israel

*Marital Status:* Married, 2 children

### Academic Education

Ph.D. Department of Mathematical Sciences, Tel-Aviv University	1978
M.Sc. (summa cum laude), Department of Mathematical Sciences, Tel-Aviv University	1975
B.Sc. (cum laude), Department of Mathematical Sciences, Tel-Aviv University	1973

### Academic Appointments

Distinguished University Professor, University of Maryland (UMd)	2005–
Professor, Department of Mathematics and Institute for Physical Science and Technology, UMD	2002–
Center for Scientific Computation and Mathematical Modeling, UMD	2002–2020
Senior Fellow, Institute for Theoretical Studies (ETH-ITS), ETH-Zürich	2016–2017
Professor, Department of Mathematics, UCLA	1995–2002
Professor, Department of Applied Mathematics, Tel-Aviv University	1989–1995
Associate Professor, Department of Applied Mathematics, Tel-Aviv University	1985–1989
Senior Lecturer, Department of Applied Mathematics, Tel-Aviv University	1983–1985
Staff Scientist, ICASE, NASA Langley Research Center, Hampton, Virginia	1982–1983
Bateman Research Instructor, Department of Applied Mathematics, CalTech	1980–1982
Post-Doctoral Fellow, Department of Mathematical Sciences, Tel-Aviv University	1979–1980

### Professional Appointments

Director, Center for Scientific Computation and Mathematical Modeling (CSCAMM), UMD	2002–2016
Founding Co-Director, NSF Institute for Pure and Applied Mathematics (IPAM), UCLA	1999–2001
Director, The Sackler Institute of Scientific Computation, Tel-Aviv University	1993–1996
Chair, Department of Applied Mathematics, Tel-Aviv University	1991–1993

### Visiting Appointments

Visiting Professor, Université Paris-Sorbonne (UPMC campus), Paris	Springs 2018–2019
Senior Fellow, Institute for Theoretical Studies (ETH-ITS), ETH-Zürich	2016–2017
The Centre of Advanced Study, Norwegian Academy of Science and Letters, Oslo	May 2009
The Weizmann Institute of Science, Israel	Summers 2005–2007
Courant Institute of Mathematical Sciences, NYU	Feb. 1994
Département de Mathématiques, Université de Nice	Jan. 1994
Division of Applied Mathematics, Brown University	Feb. 1993
Département de Mathématiques, Ecole Normal Supérieure, Paris	Apr. 1992
Laboratoire d'Analyse Numériques, Paris VI	Apr. 1991
Department of Mathematics, University of Michigan, Ann Arbor	Winter 1990
Department of Mathematics, UCLA	Summers 1985–1988, 1990–1994
ICASE, NASA Langley Research Center, Hampton, Virginia	Summers 1984–1991

## Honors

★ Academia Europaea	2022
★ European Academy of Sciences	2022
★ AMS-SIAM Norbert Wiener Prize in Applied Mathematics	2022
★ Josiah Willard Gibbs Lecture, American Mathematical Society	2022
★ SIAM Fellow	2021
★ Plenary speaker, International Congress of Industrial and Applied Math. (ICIAM2019), Valencia	July 2019
★ Member, IMU circle, International Mathematical Union	2018
★ Nachdiplom Lectures, ETH-Zürich	Mar–May 2017
★ “Leçons Jacques-Louis Lions 2016” (3 lectures), UPMC, Sorbonne Universités, Paris	June 2016
★ Program Committee, International Congress of Mathematicians (ICM2018), Rio-de Janeiro	2015–2018
★ Peter Henrici Prize in Applied Analysis and Numerical Analysis, SIAM-ETH	2015
★ SIAM Invited Address, Joint Mathematics Meeting meeting, Baltimore	Jan. 2014
★ Invited Address, AMS meeting, Iowa State University	Apr. 2013
★ AMS Fellow, Inaugural class of Fellows of the American Mathematical Society	Jan. 2013
★ NSF Research Network in Mathematical Sciences, PI — Kinetic Network, Ki-Net	2012–2020
★ Plenary Lecture, The 13 <sup>th</sup> international conference on hyperbolic problems, Beijing	June 2010
★ NSF Focus Research Group: PI — <i>Kinetic Description of Multiscale Phenomena</i>	2008–2012
★ Clifford lecture, Tulane University	Mar. 2007
★ Plenary Lecture, SIAM Annual Conference “Analysis of Partial Differential Equations”, Boston	July 2006
★ Distinguished University Professor, University of Maryland	2005
★ Cited, ISIHighlyCited.com list of 250 most cited researchers in Mathematics	2004
★ Miller lecture, Iowa State University	Apr. 2003
★ Invited speaker, International Congress of Mathematicians (ICM2002), Beijing	July 2002
★ “Frontiers in Mathematics” (3 lectures), Texas A&M	Oct. 2000
★ DiPerna lecture, UC Berkeley	Jan. 2000
★ Founding co-director and co-PI, NSF Institute for Pure & Applied Mathematics (IPAM), UCLA	1999
★ Plenary Lecture, The 4 <sup>th</sup> ICOSAHOM meeting, Herzliya, Israel	June 1998
★ Plenary Lecture, The 7 <sup>th</sup> international conference on hyperbolic problems, ETH	Feb. 1998
★ Plenary Lecture, The 3 <sup>rd</sup> International Conference on Hyperbolic Problems Stockholm	June 1990
★ Plenary Lecture, The 1 <sup>st</sup> ICOSAHOM meeting, Como, Italy	June 1989
★ Plenary Lecture, The 1 <sup>st</sup> International Conference on Hyperbolic Problems St-Etienne, France	Jan. 1986
★ Rothschild Fellow, Yad HaNadiv,	1980–1981

## Professional Service

Advisory Board, Mainz Institute of Multiscale Modeling, JG University, Mainz,	2019–
Chair, SIAM Activity Group on Analysis of PDEs	2017–2018
Scientific Advisory Board, ModCompShock, Innovative Training Network (ITN)	2015–2020
AMS Program Committee for National Meetings	2015–2018
US National Committee on Theoretical and Applied Mechanics (USNC/TAM)	2012–2016
Director, Ki-Net — an NSF Research Network on Mathematical Sciences, UMd	2012–2020
Advisory Board, NSF Materials Research Science & Eng. Center (MRSEC), CMU, Pittsburgh	2009–2010
Board of Governors, NSF Institute for Mathematics & its Applications (IMA), Minneapolis	2002–2006
Scientific Advisory Board, European Network “ <i>Hyperbolic and Kinetic Equations</i> ” (HYKE)	2002–2005
Science Board, Industrial Mathematics Institute (IMI), University of South Carolina, Columbia	1999–2005
Affiliate Member, California Nano-System Institute (CNSI), UCLA	1999–2004
Board of Trustees, NSF Institute for Pure and Applied Mathematics (IPAM), UCLA	1999–2003
Board of Directors, Foundations of Computational Mathematics (FoCM)	1999–2003

## Professional Activities

### Co-Chair —

- International Conferences “*Hyperbolic Problems: Theory, Numerics and Applications*”
  - Hyp2008 (University of Maryland, College Park) • Hyp2002 (CalTech, Pasadena)
- “*Approximation and Computation*” (honoring R. DeVore), S. Carolina (2001)

### Scientific Program Committees —

- Abel Symposium “Nonlinear Partial Differential Equations”, Trondheim, Norway ..... Abel2023
- Newton Institute, “[Frontiers in kinetic theory: connecting microscopic to macroscopic scales](#)” KinCon2022
- CIRM - Jean-Morlet Chair, “[kinetic equations: from Modeling, Computation to Analysis](#)” Mar. 2021
- SIAM “*Seminar in the Analysis and Methods of PDE*”, [Online seminar](#) 2020–2022
- Program Committee, International Congress of Mathematicians, Rio-de Janeiro ..... ICM2018
- International Conference “*Hyperbolic Problems. Theory, Numerics, and Applications*”  
Malaga (2021-22); PennState (2018); AAachen (2016); Rio-de Janeiro (2014); Padova (2012) ...
- Abel Symposium “Nonlinear Partial Differential Equations”, Oslo ..... Abel2010
- The European Consortium For Mathematics in Industry (ECMI), London (2008)
- Panel Committee Core Member, “*Numerical Analysis and Scientific Computing*”, Madrid ..... ICM2006
- European Math. Society, “*Applied Mathematics and Applications of Mathematics*”, Nice (2003)
- “*Math. and Numerical Aspects of Wave Propagation*”, Santiago de Compostela (2000); Strasbourg (1991)

### External Evaluation Committees —

- Center for Applicable Mathematics (CAM), Tata Institute, Bangalore (2018)
- Committee of Visitors (COV), Division of Mathematical Sciences, NSF (2016)
- University N. Carolina Chapel Hill (2015) • University of Utah (2007)
- University of British Columbia (2006) • Laboratoire Jacques-Louis Lions, Paris VI (2004)
- PSCI, Royal Institute of Technology, Stockholm (2003)
- Gauss Minerva Center, Weizmann Institute, Israel (1999)

### Organizing Committees —

- “*The Hydrodynamics of Living Matter*”, Fields Institute (canceled) (2020)
- “*Quantum and Kinetic Problems*”, Institute of Mathematical Sciences, NUS, Singapore (2019/2020)
- Panel, Numerical Analysis session, International Congress Applications of Math., Santiago, Chile (2006)
- Local Committee, The 17<sup>th</sup> International Conference “*Parallel CFD*”, College Park (2005)
- “*Numerical Relativity*”, Banff International Research Station (2005)
- FoCM workshop “*Foundations of Numerical PDEs*”, IMA (2002)
- IPAM programs “*Geometrically Based Motions*”, “*Oscillatory Integrals and Dispersive Equations*”, “*Financial Mathematics*”, UCLA (2001)
- ONR Workshop “*Image Processing: Theory, Analysis, and Applications*”, UCLA (2000)
- AMS conference “*Mathematical Challenges of the 21<sup>st</sup> Century*”, UCLA (2000)
- TAU-NYU workshop “*Applied Math – Research and Education*”, Tel-Aviv University (1992);
- ONR workshop “*Conservation Laws and Shock Capturing*”, Univ. S. Carolina (1991)
- Special session on PDEs, AMS-IMU meeting, Hebrew University (1995)

### Selection Committees —

- The PIMS/UBC Math faculty award (2017–2018) • SIAG/APDE Prize (2015)
- SIAM Julian Cole Lectureship (2006) • Lagrange Prize, The 5<sup>th</sup> ICIAM, Sydney (2003)
- SIAM Membership committee (9/2002–6/2005)

## Editorial Activities

### Editorial Boards

Transactions in Mathematics and its Applications, (Senior Editor — 2015–2020)	2015–present
European Journal of Mathematics, Editorial Board	2014–present
European Mathematical Society (EMS) Surveys in Mathematical Sciences, Associate Editor	2013–present
Versita & de Gruyter book Program in Mathematics, Editorial Advisory Board	2010–2012
Acta Numerica, Editorial Board	2009–present
Communications in Applied Mathematics and Computational Science, Editorial Board	2008–present
Communications in Mathematical Sciences, Editorial Board	2007–present
Networks and Heterogeneous Media, Editorial Board	2006–present
Communications in Computational Physics (CiCP), Editorial Board	2005–present
SIAM Journal on Mathematical Analysis (SIMA), Editorial Board	2004–present
Journal of Hyperbolic Differential Equations, Editorial Board	2003–present
Foundations of Computational Mathematics, Editorial Board	2004–present
_____, Advisory Board	1999–2003
Numerische Mathematik, Editorial Board	1991–present
Computational Methods in Applied Mathematics (CMAM), Editorial Board	2005–2014
AIMS Book Series in Applied Mathematics, Editorial Board	2006–2010
International Journal of Numerical Analysis and Modeling, Editorial Board	2003–2009
Central European Journal of Mathematics, Editorial Board	2002–2013
Mathematical Modeling and Numerical Analysis (M <sup>2</sup> AN), Editorial Board	2002–2012
IMA Journal of Numerical Analysis, Associate Editor	2001–2006
AMS Proceedings of Symposia in Applied Mathematics, Chair of Editorial Board	2005–2011
_____, Editorial Board	1996–2004
Advances in Computational Mathematics (AiCM), Editorial Board	1992–2003
SIAM Journal on Numerical Analysis (SINUM), Editorial Board	1990–2013

### Special Volumes

Guest Editor, NHM vol. 10(3) “Modeling and Control in Social Dynamics”	2015
Co-Editor, Linear Algebra and Appl., vol. 438(10) dedicated to A. Berman, M. Goldberg & R. Loew	2013
Guest Editor, M <sup>2</sup> AN vol. 46(3), dedicated to D. Gottlieb	2012
Dedication, CiCP vol. 9(3), dedicated to D. Gottlieb	2011
Guest Editor, SINUM vol. 35(6), dedicated to A. Harten	1998

## Fellowship Awards and Research Grants

### ONR Research Grants

University of Maryland	2009–2024
N00014-09-10385, PI (2009–2011), N0014-12-10318, PI (2012–2014), N0014-15-12094, PI (2015–2017)	
N00014-18-12465, PI (2018–2021), N00014-2112773, PI (2021–2024)	
N00014-91-J1076, Co-PI with R. DeVore, University of South Carolina	1991–2008

### NSF Research Grants

University of Maryland	2004–2021
DMS04-07704, PI (2004–2007), DMS04-12092, PI (2004–2007), DMS07-07949, PI (2007–2010)	
DMS10-08397 (2010–2016), DMS16-13911, PI (2016–2021)	
UCLA	1997–2004
Co-PI (1985–1987), DMS97-06827, Co-PI with B. Engquist & S. Osher (1997–2001)	
DMS01-07917, PI (2001–2004), DMS01-07428, PI (2001–2004)	
NSF Research Network in Math. Sciences: Ki-Net, DMS11-07444, PI, UMd	2012–2020
NSF Focus Research Group (FRG) Research Grant DMS07-57227, PI, University of Maryland	2008–2011
“Hyperbolic Problems: Theory, Numerics and Applications”, PI, University of Maryland	2008
NSF Grant DMS07-42260, AFOSR Grant FA955008100, ONR Grant N00014-08-1003	
“Hyperbolic Problems: Theory, Numerics and Applications”, Co-PI with T. Hou, CalTech	2002
ONR Grant N00014-02-0297, NSF Grant DMS02-25789	
NSF Institute for Pure and Applied Mathematics (IPAM), DMS98-10282, Co-PI, UCLA	1999–2005
Israel Academy of Sciences, Basic Research Foundation, PI, Tel-Aviv University	1991–1994

U.S.-Israel BSF Research Grant #85-00346, Co-PI with S. Osher, Tel-Aviv University,	1986–1988
ARO Research Grant DAAG-85-K-0190, UCLA	1985–1987
Bat-Sheva Fellowship, Bat-Sheva de Rothschild Foundation, Tel-Aviv University	1985–1986
<b>Alon Fellowship</b> , Israel Council for Higher Education, Tel-Aviv University	1983–1986
<b>Rothschild Fellowship</b> , “Yad Avi Ha-Yishuv”, CalTech	1980/81

### Graduate Students

Jincheng Lu, Graduate student	Ph.D., UMd expected 2023
Omishwary Bhatoo, University of Technology, Mauritius	Ph.D., UT Mauritius 2020
Siming He, Assistant Professor, University of S. Carolina	Ph.D., U. of Maryland 2018
Mohammad Zakerzadeh, INRIA	Ph.D., RWTH Aachen 2017
Ming Zhong, Assistant Professor, Illinois Institute of Technology	Ph.D., U. of Maryland 2016
Changhui Tan, Associate Professor, University of S. Carolina	Ph.D., U. of Maryland 2014
Ulrik Fjordholm, Associate Professor, University of Oslo	Ph.D., ETH Zürich 2013
Prashant Athavale, Assistant Professor, Clarkson University	Ph.D., U. of Maryland 2009
Weigang Zhong, Software Developer, Oracle Corporation	Ph.D., U. of Maryland 2007
Bin Cheng, Senior Lecturer, Surrey University	Ph.D., U. of Maryland 2007
Dongming Wei, PNC Bank, Manhattan,	Ph.D., U. of Maryland 2007
Jorge Balbas, Associate Professor, Cal. State University Northridge	Ph.D., UCLA 2004
Suzanne Nezzar, Associate Professor, R. Stockton College of New Jersey	Ph.D., UCLA 2003
Jared Tanner, Professor of Mathematics of Information, University of Oxford	Ph.D., UCLA 2002
Chi-Tien Lin, Associate Professor, Providence University, Taiwan	Ph.D., UCLA 1998
Doron Levy, Professor, University of Maryland	Ph.D., Tel-Aviv U. 1997
Alexander Kurganov, Chair Professor, SUSTech University, China	Ph.D., Tel-Aviv U. 1997
Haim Nessler, deceased	Ph.D., Tel-Aviv U. 1994
Tamir Tassa, Professor, The Open University, Tel-Aviv	Ph.D., Tel-Aviv U. 1993
Raphael Hess, Israel General Manager, P-Cube Inc.	M.Sc., Tel-Aviv U. 1991
Kamal Agbariah, Teacher	M.Sc., Tel-Aviv U. 1991
Avital Netzer-Stein, Director-General, Israel Council for Higher Education	M.Sc., Tel-Aviv U. 1989
Doron Gill, General Manager, Mercado Software Inc., Israel	M.Sc., Tel-Aviv U. 1987

### Post-Doctoral Collaborators

Hussain Ibdah, Novikov post-doc	U. of Maryland 2021–
Ruiwen Shu, Assistant Professor, University of Georgia	U. of Maryland 2018–2021
Javier Morales, COMCAST	U. of Maryland 2017–2020
Jan Peszek, Assistant professor, University of Warsaw	U. of Maryland 2018–2019
Zhenning Cai, Assistant Professor, National University of Singapore	U. of Maryland 2016/1-3
Yongyong Cai, Professor, Beijing Normal University	U. of Maryland 2013–2014
Thomas Rey, Assistant Professor, University of Lille	U. of Maryland 2012–2014
Sébastien Motsch, Associate Professor, Arizona State University	U. of Maryland 2009–2013
Trygve Karper, Schlumberger Information Solutions, SPTC Kjeller, Norway	U. of Maryland 2009–2012
Hantaek Bae, Professor, Ulsan Nat'l Institute of Sci. & Tech. (UNIST), Korea	U. of Maryland 2009–2012
Knut Waagan, Research Associate, University of Washington	U. of Maryland 2009–2011
Suleyman Ulusoy, Professor, American Univ. of Ras Al Khaimah Road, UAE	U. of Maryland 2009–2011
Jing Zou, Director, Royal Bank of Canada	U. of Maryland 2005–2007
Marcus Calhoun-Lopez, Accelerated Learning Laboratory, Tucson, Arizona	U. of Maryland 2003–2005
Hailiang Liu, Professor, Iowa State University	UCLA 2000–2002
Guang-Shan Jiang, UBS Bank, Shanghai	UCLA 1995–1996
Shlomo Engelberg, Professor, Jerusalem College of Technology	Tel-Aviv U. 1994–1996

**Distinguished Lectures** (selected)

Josiah Willard Gibbs Lecture, American Mathematical Society, Joint Mathematics Meeting	April 2022
Invited speaker, Int'l Congress on Industrial and Applied Mathematics (ICIAM) Valencia, Spain	July 2019
Plenary Lecture, "High Performance Computing Modeling, ...", Hanoi Univ. Sci&Tech, Vietnam	Mar. 2018
Mathematics and Social Sciences, Accademia Nazionale dei Lincei, Rome	May 2017
Julian Clancy Frazier Mathematics Colloquium US Naval Academy, Annapolis, MD	Jan. 2017
Nachdiplom Lectures, ETH-Zurich	Mar.-May 2017
"Leçons Jacques-Louis Lions 2016" (3 lectures), UPMC, Sorbonne Universités, Paris	June 2016
"Distinguished Colloquium Series in Applied Mathematics" Columbia University, South Carolina	Mar. 2016
"Henrici Prize lecture", International Congress Industrial Applied Math. (ICIAM) 2015, Beijing	Aug. 2015
"Science Distinguished Lecture Series", Hong Kong Baptist University	Dec. 2014
Keynote speaker, Mid Atlantic Numerical Analysis Day, Temple University, PA	Nov. 2014
"Structure Preserving Discretizations of PDEs" (in honor of Dough Arnold), IMA, Minneapolis	Oct. 2014
Plenary Lecture, BIOMAT-2014: "Complexity and Emergence in Social ... Systems", Granada	June 2014
SIAM Invited Address, Joint Mathematics Meeting AMS-MAA	Jan. 2014
Mini-tutorial: "Kinetic Descriptions of Collective Dynamics", SIAM Analysis of PDEs, Orlando	Dec. 2013
Plenary Lecture, Equadiff 13, Prague	Aug. 2013
Plenary Lecture, Luis Santanl� school "Scientific Challenges in a Sustainable Planet", Santander	July 2013
Invited Address, AMS meeting, Iowa State University	Apr. 2013
Plenary Lecture, "Nonlinear Partial Differential Equations", Oxford	Sep. 2012
Plenary Lecture, "Applied PDEs in Physics, Biology and Social Sciences" ESF meeting, Barcelona	Sep. 2012
107th Statistical Mechanics Conference, Rutgers University	May 2012
"New Trends in Approximation Theory" Ein-Gedi, Israel	Jan. 2012
"Scientific Computing" (in honor of Tony Chan), Chinese University of Hong-Kong	Jan. 2012
"Applications of Kinetic Theory and Computation", ICERM, Brown University	Oct. 2011
"Incompressible Fluids, Turbulence and Mixing" (in honor of Peter Constantin), Carnegie Mellon	Oct. 2011
"Modern Techniques in the Numerical Solution of PDEs" Heraklion, Crete	Sep. 2011
The 2011 Golomb Lecture in Applied Mathematics, Jerusalem College of Technology	June 2011
"Kinetic Description of Multiscale Phenomena" (in honor of D. Levermore), UW-Madison	May 2011
"Paris Foundation of Mathematical Sciences" (in honor of R. DeVore) Paris VI,	May 2011
"New Perspectives in Nonlinear PDEs" (in honor of B. Temple), UM Ann Arbor	May 2011
"Applied Mathematics from Waves to Fluids" (in honor of C. Bardos), Universit� de Nice	Feb. 2011
"Numerical Methods for Hyperbolic Equations" (in honor of R. Jeltsch), ETH Zurich	Feb. 2011
Plenary Lecture, Taiwan Mathematical Society annual meeting, National Changhua Univ., Taiwan	Dec. 2010
(4 lectures) "North British Differential Eqs Seminar", Edinburgh, Glasgow, Manchester & Leeds	Nov. 2010
"Nonlinear Partial Differential Equations", The Abel Symposium 2010, Oslo, Norway	Sep. 2010
"International conference in celebration of Heinz-Otto Kreiss 80th Birthday", KTH, Stockholm,	Sep. 2010
"Fluid-Kinetic Modelling in Biology, Physics and Engineering", Newton Inst. Math. Sciences	Sep. 2010
"Recent Advances in Nonlinear Evolutionary Eqs. and Multi-scale Phenomena", Weizmann Inst.	July 2010
"Computational Methods in Applied Mathematics", Math. Research Center, Bedlewo, Poland	June 2010
Plenary Lecture, The 13 <sup>th</sup> international conference on hyperbolic problems, Beijing	June 2010
Research group in Nonlinear PDEs (4 Lectures), Centre for Advanced Study, Oslo	May 2009
Plenary Lecture, The 2008 FoCM conference (Foundations of Computational Math.), Hong-Kong	June 2008
CSC Distinguished Speakers Series, Simon Fraser University	Dec. 2007
Keynote speaker, Clifford Lectures (4 Lectures), Tulane University	Mar. 2007
Plenary Lecture, SIAM Annual Conference on "Analysis of Partial Differential Equations", Boston	July 2006
The Abel Symposium, "Mathematics and Computation, a Contemporary View", �lesund, Norway	May 2006
IAM-PIMS-MITACS Distinguished Colloquium Series, University of British Columbia	Oct. 2005
"Differential Eqs: From Theory to Computational Science" (honoring R. Jeltsch), ETH, Z�rich	Oct. 2005
Plenary Lecture, "International Conference on Scientific Computation", Nanjing, China	June 2005
"Multiscale Modeling and Scientific Computing" (honoring B. Engquist), Peking University	June 2005
"Mathematical Methods in Hydrodynamics", Univ. des Sciences et Technologies de Lille, France	June 2005
Distinguished Applied Mathematics Lecture Series, JRIAM, Hong Kong Baptist University	June 2005
Public Lecture, "The Mathematics of Scientific Computation", National University of Singapore	Jan. 2005
"Research Trend for PDE Modeling and Computation" (honorig D. Gottlieb), Brown University	Nov. 2004

Plenary Lecture, The 6 <sup>th</sup> Int'l conference "Math'l Aspects of Fluid and Plasma Dynamics", Kyoto	Sep. 2004
Miller Lecture, Iowa State University, Ames	Apr. 2003
Plenary Lectures (4 lectures), Winter School in Computational Math. 2003, Geilo, Norway	Mar. 2003
Plenary Lecture, "Around HYperbolic and Kinetic Equations", Vienna,	Feb. 2003
Plenary Lecture, The 3 <sup>rd</sup> Int'l Workshop "Scientific Computing and Applications", Hong Kong	Jan. 2003
Invited speaker, International Congress of Mathematicians (ICM), Beijing	Aug. 2002
"Congrès de Mathématiques Appliquées" (à la memoire de J.-L. Lions), Paris	July 2002
"Differential Equations and Dynamical Systems", Lhasa, Tibet	May 2001
"Approximation and Computation" (honoring R. DeVore), Charleston, South Carolina	May 2001
"Distinguished Lecture Series", Arizona State University	Dec. 2000
"IMI Distinguished Lecture", University of South Carolina	Nov. 2000
"Frontiers in Mathematics" (3 Lectures), Texas A&M	Oct. 2000
"Nonlinear Problems in Applied Sciences" (honoring C. Foias and R. Temam), Bloomington, IN	Sep. 2000
"DiPerna Memorial Lecture", UC Berkeley	Jan. 2000
Plenary Lecture, "Godunov Methods: Theory & Applications", (honoring S K Godunov), Oxford	Oct. 1999
Plenary Lecture, The 4 <sup>th</sup> ICOSAHOM meeting, Herzliya, Israel	June 1998
Plenary Lecture, The 7 <sup>th</sup> international conference on hyperbolic problems, ETH	Feb. 1998
Plenary Lectures (5 Lectures), C.I.M.E. International Math. Summer Center on "Advanced Numerical Approximation of Nonlinear Hyperbolic Equations", Cetraro, Italy	June 1997
Int'l Conference "Nonlinear PDEs and Applications", TATA Institute, Bangalore, India	Aug. 1996
"Recent Advances in PDEs and Applications" (honoring P. Lax and L. Nirenberg), Venice	June 1996
Plenary Lecture, The 1 <sup>st</sup> European conference "Numerical Math. & Advanced Applications", Paris	Sep. 1995
Plenary Lectures (3 lectures), Workshop on Conservation Laws, Trondheim, Norway	Aug. 1995
Plenary Lectures (3 lectures), INRIA School on "Méthode Numériques d'Ordre élevé Pour les Ondes en Règime Transitoire", INRIA, Rocquencourt, France	Jan. 1994
Plenary Lectures (3 lectures), RWTH Seminar on "Hyperbolic Conservation Laws – Theory and Numerical Analysis", Paderborn, Germany	Oct. 1993
Plenary Lectures (3 lectures), The Nordic Summer school on "Numerical Methods in Fluid Mechanics", Sydkoster, Sweden	Aug. 1990
Plenary Lecture, The 3 <sup>rd</sup> international conference on hyperbolic problems, Uppsala	June 1990
Plenary Lecture, The 1 <sup>st</sup> ICOSAHOM meeting, Como, Italy	June 1989
Plenary Lecture, The 1 <sup>st</sup> International Conference on Hyperbolic Problems St-Etienne, France	Jan. 1986

## LIST OF PUBLICATIONS

### Books

- 1 *Hyperbolic Problems: Theory, Numerics, Applications*, Proceedings of the Ninth International Conference on Hyperbolic Problems held in CalTech, Pasadena, March 25-29, 2002, Springer-Verlag T. Hou & E. Tadmor (Editors), ISBN: 3-540-44333-9, 2003.
- 2 *Hyperbolic Problems: Theory, Numerics, Applications*, Proceedings of the Twelfth International Conference on Hyperbolic Problems held in University of Maryland, College Park, June 8-13, 2008 E. Tadmor, J.-G. Liu & A. Tzavaras (Editors), AMS Proc. of Symposia in Applied Mathematics 67 Part1 ISBN: 978-0-8218-4729-9 and Part2 ISBN: 978-0-8218-4730-5, 2009.
- 3 *Active Particles*, Advances in Theory, Models, and Applications. Modeling and Simulation in Science, Engineering and Technology, Birkhuser  
N. Bellomo, P. Degond & E. Tadmor (Editors), Vol. 1, ISBN 978-3-319-49994-9, 2017  
N. Bellomo, P. Degond & E. Tadmor (Editors), Vol. 2, ISBN 978-3-319-49994-9, 2019  
N. Bellomo, J. Carrillo & E. Tadmor (Editors), Vol. 3, ISBN 978-3-030-93301-2, 2022
- 4 *Modeling and Simulation for Collective Dynamics*, in Lecture Notes Series, Institute for Mathematical Sciences, National University of Singapore  
W. Bao, P. Markowich, B. Perthame & E. Tadmor (Editors), Vol 40, ISBN 978-981-126-613-3, 2022.

### Chapters in Books

- 5 (with D. Gottlieb) *Recovering pointwise values of discontinuous data within spectral accuracy*, in “Progress and Supercomputing in Computational Fluid Dynamics”, Proceedings of a 1984 U.S.-Israel Workshop, Progress in Scientific Computing, Vol. 6 (E. M. Murman and S. S. Abarbanel, eds.), Birkhäuser, Boston, 1985, pp. 357-375.
- 6 *Approximate solution of nonlinear conservation laws and related equations*, in “Recent Advances in Partial Differential Equations and Applications” Proceedings of the 1996 Venice Conference in honor of Peter D. Lax and Louis Nirenberg on their 70th Birthday (R. Spigler and S. Venakides eds.) AMS Proceedings of Symposia in Applied Math. 54, ISBN: 978-0-8218-0657-9, 1998, pp. 325-368.
- 7 *Approximate solutions of nonlinear conservation laws*, in “Advanced Numerical Approximation of Nonlinear Hyperbolic Equations,” Lectures Notes from CIME Course Cetraro, Italy, 1997 (A. Quarteroni, ed.), Lecture Notes in Mathematics 1697, Springer-Verlag, 1998, pp. 1-150.
- 8 *High resolution methods for time dependent problems with piecewise smooth solutions*, “International Congress of Mathematicians” Proceedings of ICM02 Beijing 2002 (Li Tatsien, ed.), Vol.III: Invited Lectures, Higher Education Press, ISBN: 7-04-008690-5, 2002, pp. 747-757.
- 9 *From Semi-discrete to fully discrete: stability of Runge-Kutta schemes by the energy method. II*, in “Collected Lectures on the Preservation of Stability under Discretization”, Lecture Notes from Colorado State University Conference held in Fort Collins, CO, 2001 (D. Estep and S. Tavener, eds.), Proceedings in Applied Mathematics 109, SIAM 2002, pp. 25-49.
- 10 (with W. Zhong) *Energy-preserving and stable approximations for the two-dimensional shallow water equations*, in “Mathematics and Computation - A Contemporary View”, Proceedings of the Third Abel Symposium held in Ålesund, Norway May 2006 (H. Munthe-Kaas & B. Owren eds.) Abel Symposia 3, Springer 2008, pp. 67-94.
- 11 (with U. Fjordholm & S. Mishra) *Energy preserving and energy stable schemes for the shallow water equations*, “Foundations of Computational Mathematics”, Proceedings of FoCM conference held in Hong Kong 2008 (F. Cucker, A. Pinkus & M. Todd, eds) London Mathematical Society Lecture Notes Series 363, Cambridge Univ. Press, 2009, pp. 93-139.
- 12 (with B. Cheng) *Approximate periodic solutions for the rapidly rotating shallow-water and related equations*, “Water Waves. Theory and Experiment”, Proceedings of the Conference held in Howard



University, May 2008 (M. F. Mahmood, D. Henderson & H. Segur, eds)  
[World Scientific, 2010, pp. 69-78.](#)

- 13 *Selected topics in approximate solutions of nonlinear conservation laws. High-resolution central schemes*, in “Nonlinear Conservation Laws and Applications” (A. Bressan, G-Q. Chen, M. Lewicka and D. Wang, eds), [IMA Volumes in Mathematics and its Applications #153, Springer, NY, 2011](#), pp. 101-122.
- 14 *Entropy stable schemes*, in “Handbook of Numerical Methods for Hyperbolic Problems” vol 18 (R. Abgrall & C.-W. Shu, eds.), [Elsevier, ISBN: 9780444639103, 2016 pp. 467-493.](#)

### Book Reviews

- 15 E. Tadmor (Reviewer) *Spectral Methods in Fluid Dynamics* by C. Canuto, M.Y. Hussaini, A. Quarteroni & T. Zang, [Mathematics of Computation 57\(196\) \(1991\), 876-878.](#)
- 16 E. Tadmor (Reviewer) *Polynomial Approximation of Differential Equations* by D. Funaro  
[Mathematics of Computation 62\(206\) \(1994\), 942-943.](#)

### Special issues

- 17 E. Tadmor (Guest Editor), Special issue dedicated to Ami Harten  
[SIAM Journal of Numerical Analysis 35\(6\), 1998.](#)
- 18 E. Tadmor (Guest Editor), Special issue dedicated to David Gottlieb, *Communications in Computational Physics* 9(3), 2011.
- 19 J. Hesthaven & E. Tadmor (Guest Editors), Special volume in honor of Professor David Gottlieb  
[Mathematical Modeling and Numerical Analysis, 46, 2012.](#)
- 20 W. Barrett, R. Brualdi, N. Shaked-Monderer & E. Tadmor (Guest Editors), Special issue in honor of Abraham Berman Moshe Goldberg and Raphael Loewy  
[Linear Algebra and its Applications vol. 430\(10\), 2013.](#)
- 21 P. Degond, G. Fibich, B. Piccoli & E. Tadmor (Editors), *Modeling and Control in Social Dynamics*, Special issue – selected presentations in Ki-Net conference held in Rutgers, Camden  
[Networks and Heterogeneous Media 10\(3\), 2015.](#)

### Articles

- 22 (with M. Goldberg & G. Zwas) *The numerical radius and spectral matrices*  
[Linear and Multilinear Algebra 2\(4\) \(1975\), 317-326.](#)
- 23 (with M. Goldberg & G. Zwas) *Numerical radius of positive matrices*  
[Linear Algebra and its Applications 12\(3\) \(1975\), 209-214.](#)
- 24 (with M. Goldberg) *Scheme-independent stability criteria for difference approximations of hyperbolic initial-boundary value problems. I*, [Mathematics of Computation 32\(144\) \(1978\), 1097-1107.](#)
- 25 (with M. Goldberg) *Scheme-independent stability criteria for difference approximations of hyperbolic initial-boundary value problems. II*, [Mathematics of Computation 36\(154\) \(1981\), 603-626.](#)
- 26 *The equivalence of  $L^2$ -stability, the resolvent condition and strict H-Stability*  
[Linear Algebra and its Applications 41 \(1981\), 151-159.](#)
- 27 (with M. Goldberg) *On the numerical radius and its applications*  
[Linear Algebra and its Applications 42 \(1982\), 263-284.](#)
- 28 *The unconditional instability of inflow-dependent boundary conditions in difference approximations to hyperbolic systems*, in “Numerical Boundary Condition Procedure”, Proceedings of the 1981 NASA Ames Research Center Symposium on Numerical Boundary Condition Procedures (P. Kutler, ed.), NASA Ames 1982, pp. 323-332.
- 29 *Hyperbolic systems with different time scales*  
[Communications on Pure and Applied Mathematics 35\(6\) \(1982\), 839-866.](#)

- 30 *The unconditional instability of inflow-dependent boundary conditions in difference approximations to hyperbolic systems*, [Mathematics of Computation](#) 41 (1983), 309-319.
- 31 (with S. Friedland) *Optimality of the Lax-Wendroff condition*  
[Linear Algebra and its Applications](#) 56 (1984), 121-129.
- 32 *Skew selfadjoint form for systems of conservation laws*  
[Journal of Mathematical Analysis and Applications](#) 103 (1984), 428-442.
- 33 *The large-time behavior of the scalar, genuinely nonlinear Lax-Friedrichs scheme*  
[Mathematics of Computation](#) 43(168) (1984), 353-368.
- 34 *Numerical viscosity and the entropy condition for conservative difference schemes*  
[Mathematics of Computation](#) 43(168) (1984), 369-381.
- 35 (with M. Goldberg) *Convenient stability criteria for difference approximations of hyperbolic initial-boundary value problems*, [Mathematics of Computation](#) 44 (1985), 361-377.
- 36 (with M. Goldberg) *New stability criteria for difference approximations of hyperbolic initial-boundary value problems*, in "Large-Scale Computations in Fluid Mechanics", Lectures in Applied Mathematics, Vol. 22-Part 1 (B. E. Engquist, S. Osher, and R. C. J. Somerville, eds.), American Mathematical Society, Rhode Island, pp. 177-192, 1985.
- 37 *The exponential accuracy of Fourier and Chebyshev differencing methods*  
[SIAM Journal on Numerical Analysis](#) 23(1) (1986), 1-10.
- 38 *The well-posedness of the Kuramoto-Sivashinsky equation*  
[SIAM Journal on Mathematical Analysis](#) 17(4) (1986), 884-893.
- 39 (with S. S. Abarbanel & D. Gottlieb) *Spectral methods for discontinuous problems*, in "Numerical Methods for Fluid Dynamics II", Proceedings of the 1985 Conference on Numerical Methods for Fluid Dynamics (K. W. Morton and M. J. Baines, eds.), Clarendon Press, Oxford, 1986, pp. 129-153.
- 40 *Complex symmetric matrices with strongly stable iterates*  
[Linear Algebra and Its Applications](#) 78 (1986), 65-77.
- 41 *The resolvent condition and uniform power-boundedness*, in "Haifa Conference on Matrix Theory", Report (A. Berman, Y. Censor and H. Schneider, eds.)  
[Linear Algebra and Its Applications](#) 80 (1986), 250-252.
- 42 *A minimum entropy principle in the gas dynamics equations*  
[Applied Numerical Mathematics](#) 2(3-5) (1986), 211-219.
- 43 *Entropy conservative finite element schemes*, in "Numerical Methods for Compressible Flows - Finite Difference Element and Volume Techniques", Proceedings of the winter annual meeting of the American Society of Mechanical Engineering AMD-Vol. 78 (T. E. Tezduyar and T.J.R. Hughes, eds.), 1986, pp. 149-158.
- 44 *Entropy functions for symmetric systems of conservation laws*  
[Journal of Mathematical Analysis and Applications](#) 122(2) (1987), 355-359.
- 45 (with M. Goldberg) *Convenient stability criteria for difference approximations of hyperbolic initial-boundary value problems. II*, [Mathematics of Computation](#) 48 (1987), 503-520.
- 46 (with D. Gottlieb & L. Lustman) *Stability analysis of spectral methods for hyperbolic initial-boundary value systems*, [SIAM Journal on Numerical Analysis](#) 24(2) (1987), 241-256.
- 47 (with D. Gottlieb & L. Lustman) *Convergence of spectral methods for hyperbolic initial-boundary value systems*, [SIAM Journal on Numerical Analysis](#) 24(3) (1987), 532-537.
- 48 *The numerical viscosity of entropy stable schemes for systems of conservation laws. I.*  
[Mathematics of Computation](#) 49 (1987), 91-103.
- 49 *The entropy dissipation by numerical viscosity in nonlinear conservative difference schemes*, in "Non-linear Hyperbolic Problems", Proceedings of a 1986 Advanced Research Workshop  
[Lecture Notes in Mathematics](#), Vol. 1270 (C. Carasso, P.-A. Raviart and D. Serre, eds.), Springer-Verlag, 1987, pp. 52-63.

- 50 *Stability analysis of finite-difference, pseudospectral and Fourier-Galerkin approximations for time-dependent problems*, [SIAM Review 29\(4\) \(1987\), 525-555](#).
- 51 (with S. Osher) *On the convergence of difference approximations to scalar conservation laws* [Mathematics of Computation 50 \(1988\), 19-51](#).
- 52 *Convenient total variation diminishing conditions for nonlinear difference schemes* [SIAM Journal on Numerical Analysis 25\(5\) \(1988\), 1002-1014](#).
- 53 (with M. Goldberg) *Simple stability criteria for difference approximations of hyperbolic initial-boundary value problems*, in “Nonlinear Hyperbolic Equations - Theory, Computation Methods, and Applications”, Proceedings of the Second International Conference on Nonlinear Hyperbolic Problems, Notes on Numerical Fluid Mechanics, Vol. 24 (J. Ballmann and R. Jeltsch eds.), Vieweg Verlag, 1988, pp. 179-185.
- 54 *Convergence of spectral methods for nonlinear conservation laws* [SIAM Journal on Numerical Analysis, 26\(1\) \(1989\), 30-44](#).
- 55 *Convergence of the spectral viscosity method for nonlinear conservation laws*, in “11th International Conference on Numerical Methods in Fluid Dynamics”, Lecture Notes in Physics, Vol. 323 (D. L. Dwoyer, M. Y. Hussaini, and R. G. Voigt, eds.), Springer-Verlag, 1989, pp. 548-552.
- 56 (with Y. Maday) *Analysis of the spectral vanishing method for periodic conservation laws* [SIAM Journal on Numerical Analysis 26\(4\) \(1989\), 854-870](#).
- 57 (with D. Gill) *An  $\mathcal{O}(N^2)$  method for computing the eigensystem of  $N \times N$  symmetric tridiagonal matrices by the divide and conquer approach*  
Short communication: [Linear Algebra and its Applications 120 \(1989\), 257-258](#);  
Article: [SIAM Journal on Scientific and Statistical Computing 11\(1\) \(1990\), 161-173](#).
- 58 (with H. Nessyahu) *Non-oscillatory central differencing for hyperbolic conservation laws* [Journal of Computational Physics 87\(2\) \(1990\), 408-463](#).
- 59 *Shock capturing by the spectral viscosity method* [Computer Methods in Applied Mechanics and Engineering 80\(1-3\) \(1990\), 197-208](#).
- 60 (with P.-L. Lions & B. Perthame) *Formulation cinétique des lois de conservation scalaires multidimensionnelles*, [Comptes Rendus de l'Académie des Sciences, Paris, 312, Série I \(1991\), 97-102](#).
- 61 *Essentially non-oscillatory spectral viscosity approximations*, in “Hyperbolic Problems - Theory, Numerical Methods and Applications”, Proceedings of the 3<sup>rd</sup> International Conference on Hyperbolic Problems, Vol. II (B. Engquist and B. Gustafsson, eds.), Studentlitteratur and Chartwell-Bratt, 1991, pp. 861-873.
- 62 (with B. Perthame) *A kinetic equation with kinetic entropy functions for scalar conservation laws*, [Communications in Mathematical Physics 136\(3\) \(1991\), 501-517](#).
- 63 (with D. Gottlieb) *The CFL condition for spectral approximations to hyperbolic initial-boundary value problems*, [Mathematics of Computation 56 \(1991\), 565-588](#).
- 64 *Local error estimates for discontinuous solutions of nonlinear hyperbolic equations* [SIAM Journal on Numerical Analysis 28\(4\) \(1991\), 891-906](#).
- 65 (with S. Schochet) *Regularized Chapman-Enskog expansion for scalar conservation laws* [Archive for Rational Mechanics and Analysis 119\(2\) \(1992\), 95-107](#).
- 66 (with H. Nessyahu) *The convergence rate of approximate solutions for nonlinear scalar conservation laws*, [SIAM Journal on Numerical Analysis 29\(6\) \(1992\), 1505-1519](#).
- 67 *Total-variation and error estimates for spectral viscosity approximations* [Mathematics of Computation 60 \(1993\), 245-256](#).
- 68 (with Y. Maday & S. M. Ould Kaber) *Legendre pseudospectral viscosity method for nonlinear conservation laws*, [SIAM Journal on Numerical Analysis 30\(2\) \(1993\), 321-342](#).
- 69 *Super viscosity and spectral approximations of nonlinear conservation laws*, in “Numerical Methods for Fluid Dynamics IV”, Proceedings of the 1992 Conference on Numerical Methods for Fluid Dynamics, (M. J. Baines and K. W. Morton, eds.), Clarendon Press, Oxford, 1993, pp. 69-82.

- 70 (with T. Tassa) *On the piecewise regularity of entropy solutions to scalar conservation laws* [Communications on Partial Differential Equations](#) 18(9-10) (1993), 1631-1652.
- 71 (with G.-Q. Chen & Q. Du) *Spectral viscosity approximations to multidimensional scalar conservation laws*, [Mathematics of Computation](#) 61 (1993), 629-643.
- 72 (with H. Nessyahu & T. Tassa) *The convergence rate of Godunov type schemes* [SIAM Journal on Numerical Analysis](#) 31(1) (1994), 1-16.
- 73 (with P.-L. Lions & B. Perthame) *A kinetic formulation of multidimensional scalar conservation laws and related equations*, [Journal of the American Mathematical Society](#) 7 (1994), 169-191.
- 74 (with J. Goodman & T. Hou) *On the stability of the unsmoothed Fourier method for hyperbolic equations*, [Numerische Mathematik](#) 67(1) (1994), 93-129.
- 75 (with P.-L. Lions & B. Perthame) *Kinetic formulation of the isentropic gas dynamics and p-systems*, [Communications in Mathematical Physics](#) 163(2) (1994) 415-431.
- 76 (with T. Tassa) *On the homogenization of oscillatory solutions to scalar convection-diffusion equations* [Advances in Mathematical Sciences and Applications](#) 7(1) (1997) 93-117.
- 77 (with D. Levy) *Non-oscillatory central schemes for the incompressible 2-D Euler equations* [Mathematical Research Letters](#), 4(3) (1997) 321-340.
- 78 (with R. Kupferman) *A fast high-resolution second-order central scheme for incompressible flows* [Proceedings of the National Academy of Sciences](#) 94(10) (1997) 4848-4852.
- 79 (with A. Kurganov) *Stiff systems of hyperbolic conservation laws. Convergence and error estimates*, [SIAM Journal on Mathematical Analysis](#), 28(6) (1997) 1446-1456.
- 80 (with X.-D. Liu) *Third order non-oscillatory central scheme for hyperbolic conservation laws* [Numerische Mathematik](#) 79(3) (1998) 397-425.
- 81 (with G.-S Jiang) *Non-oscillatory central schemes for multidimensional hyperbolic conservation laws*, [SIAM Journal on Scientific Computing](#) 19(6) (1998) 1892-1917.
- 82 (with D. Levy) *From semi-discrete to fully-discrete: stability of Runge-Kutta schemes by the energy method*, [SIAM Review](#) 40(1) (1998) 40-73.
- 83 (with G.-S Jiang, D. Levy, C.-T. Lin, & S. Osher ) *High-resolution non-oscillatory central schemes with non-staggered grids for hyperbolic conservation Laws* [SIAM Journal on Numerical Analysis](#) 35(6) (1998) 2147-2168.
- 84 (with T. Tang) *Pointwise error estimates for scalar conservation laws with piecewise smooth solutions*, [SIAM Journal of Numerical Analysis](#) 36(6) (1999) 1739-1758.
- 85 (with A. Gelb) *Detection of edges in spectral data* [Applied Computational Harmonic Analysis](#) 7(1) (1999) 101-135.
- 86 (with T. Tang) *Pointwise convergence rate for nonlinear conservation laws*, "Hyperbolic Problems: Theory, Numerics, Applications", Proceedings of the 7<sup>th</sup> International Conference on Hyperbolic Problems held in ETH, Zurich 1998 (M. Fey & R. Jeltsch, eds.), Int'l Series Numer. Math. 130, Birkhäuser, 1999, pp. 925-934.
- 87 (with A. Gelb) *Enhanced spectral viscosity approximations for conservation laws* [Applied Numerical Mathematics](#) 33(1-4) (2000) 3-21.
- 88 (with C.-T. Lin) *High-resolution non-oscillatory central schemes for Hamilton-Jacobi equations* [SIAM Journal on Scientific Computing](#) 21(6) (2000) 2163-2186.
- 89 (with H. J. Nussenzveig Lopes & M. C. Lopes Filho) *Approximate solutions of the incompressible Euler equations with no concentrations* [Annales de l'insitut Henri Poincaré \(c\) Non Linear Analysis](#) 17(3) (2000) 371-412.
- 90 (with A. Kurganov) *New high-resolution schemes for nonlinear conservation laws and related convection-diffusion equations*, [Journal of Computational Physics](#) 160(1) (2000), 241-282.
- 91 (with A. Kurganov) *New high-resolution semi-discrete central schemes for Hamilton-Jacobi equations*, [Journal of Computational Physics](#) 160(2) (2000) 720-742.

- 92 (with A. Gelb) *Detection of edges in spectral data II. nonlinear enhancement*  
[SIAM Journal of Numerical Analysis](#) 38(4) (2000) 1389-1408.
- 93 (with T. Tang) *Pointwise error estimates for relaxation approximations to conservation laws*  
[SIAM Journal on Mathematical Analysis](#) 32(4) (2001) 870-886.
- 94 (with C.-T. Lin)  *$L^1$  stability and error estimates for approximate Hamilton-Jacobi solutions*  
[Numerische Mathematik](#) 87(4) (2001) 701-735.
- 95 (with S. Gottlieb & C.-W. Shu) *High order time discretization methods with the strong stability preserving property*, [SIAM review](#) 43(1) (2001) 89-112.
- 96 *On a new scale of regularity spaces with applications to Euler's equations*  
[Nonlinearity](#) 14(3) (2001) 513-532.
- 97 (with B.-Y. Guo & H.-P. Ma) *Spectral vanishing viscosity method for nonlinear conservation laws*,  
[SIAM Journal of Numerical Analysis](#) 39(4) (2001) 1254-1268.
- 98 (with S. Engelberg & H. Liu) *Critical thresholds in Euler-Poisson equations*  
[Indiana Univ. Math. Journal](#) 50(1) (2001) 109-157.
- 99 (with H. Liu) *Critical thresholds in a convolution model for nonlinear conservation laws*  
[SIAM Journal on Mathematical Analysis](#) 33(4) (2001), 930-945.
- 100 (with J. Tanner) *Adaptive mollifiers – high resolution recovery of piecewise smooth data from its spectral information*, [Foundations of Computational Mathematics](#) 2(2) (2002) 155-189.
- 101 (with A. Gelb) *Spectral reconstruction of one and two dimensional piecewise smooth functions from their discrete data*, [Mathematical Modeling and Numerical Analysis](#) 36(2) (2002), 155-175.
- 102 (with A. Kurganov) *Solution of two-dimensional Riemann problems for gas dynamics without Riemann problem solvers*, [Numerical Methods for Partial Differential Equations](#) 18(5) (2002) 584-608.
- 103 (with H. Liu) *Spectral dynamics of the velocity gradient field in restricted flows*  
[Communications in Mathematical Physics](#) 228(3) (2002) 435-466.
- 104 (with H. Liu) *Semiclassical limit of the nonlinear Schrödinger-Poisson equation with subcritical initial data*, [Methods and Applications in Analysis](#) 9(4) (2002) 517-532.
- 105 (with H. Liu) *Critical thresholds in 2D restricted Euler-Poisson equations*  
[SIAM Journal of Applied Mathematics](#) 63(6) (2003) 1889-1910.
- 106 *Entropy stability theory for difference approximations of nonlinear conservation laws and related time dependent problems*, [Acta Numerica](#) v. 12, 2003, pp. 451-512.
- 107 (with H. Liu) *Critical thresholds and conditional stability for Euler equations and related models* “Hyperbolic Problems: Theory, Numerics, Applications”, Proceedings of the 9<sup>th</sup> International Conference held in Pasadena, Mar. 2002 (T. Hou & E. Tadmor, eds.), Springer, 2003, pp. 227-240.
- 108 (with J. Tanner) *An adaptive order Godunov type central scheme*, “Hyperbolic Problems: Theory, Numerics, Applications”, Proceedings of the 9<sup>th</sup> International Conference held in Pasadena, Mar. 2002 (T. Hou & E. Tadmor, eds.), Springer, 2003, pp. 871-880.
- 109 (with H. Liu) *Rotation prevents finite-time breakdown*, [Physica D](#) 188(3-4) (2004) 262-276.
- 110 (with S. Nezzar & L. Vese) *A multiscale image representation using hierarchical  $(BV, L^2)$  decompositions*, [Multiscale Modeling & Simulation](#) 2(4) (2004) 554-579.
- 111 (with J. Balbás & C.-C. Wu) *Non-oscillatory central schemes for one- and two-dimensional MHD equations*, [Journal of Computational Physics](#) 201(1) (2004) 261-285.
- 112 *Burgers' equation with vanishing hyper-viscosity*  
[Communications in Mathematical Sciences](#), 2(2) (2004) 317-324.
- 113 (with M. Rascle & P. Bagnerini) *Compensated compactness for 2D conservation laws*  
[Journal of Hyperbolic Differential Equations](#) 2(3) (2005) 697-712.
- 114 (with J. Balbás ) *A central differencing simulation of the Orszag-Tang vortex system*  
[IEEE Transactions on Plasma Science](#), The 4<sup>th</sup> Triennial Special Issue on Images in Plasma Science, 33(2) (2005) 470-471.

- 115 (with J. Tanner) *Adaptive filters for piecewise smooth spectral data*  
[IMA Journal of Numerical analysis](#) 25(4) (2005) 635-647.
- 116 (with J. Balbás) *Non-oscillatory central schemes for one- and two-dimensional MHD equations. II: high-order semi-discrete schemes*, [SIAM Journal on Scientific Computing](#) 28(2) (2006) 533-560.
- 117 *On the entropy stability of difference schemes: a comparison principle and a homotopy approach*, “Hyperbolic Problems: Theory, Numerics, Applications”, vol I, Proceedings of the 10<sup>th</sup> International Conference held in Osaka, Sep. 2004, (F. Asukura, H. Aiso, S. Kawashima, A. Matsumura, S. Nishibata & K. Nishihara, eds.), Yokohama Publishers, 2006 pp. 195-204.
- 118 (with A. Gelb) *Adaptive edge detectors for piecewise smooth data based on the minmod limiter*  
[Journal of Scientific Computing](#) 28 (2-3) (2006), 279-306.
- 119 (with W. Zhong) *Entropy stable approximations of Navier-Stokes equations with no artificial numerical viscosity*, [Journal of Hyperbolic Differential Equations](#) 3(3) (2006), 529-559.
- 120 (with T. Tao) *Velocity averaging, kinetic formulations and regularizing effects in quasilinear PDEs*  
[Communications on Pure and Applied Mathematics](#) 60(10) (2007), 1488-1521.
- 121 *Filters, mollifiers and the computation of the Gibbs phenomenon*  
[Acta Numerica](#) v. 16, 2007, pp. 305-378.
- 122 (with Y.-J. Liu, C.-W. Shu & M. Zhang) *Central discontinuous Galerkin methods on overlapping cells with a non-oscillatory hierarchical reconstruction*  
[SIAM Journal on Numerical Analysis](#) 45(6) (2007) 2442-2467.
- 123 (with K. Karlsen & M. Rasche) *On the existence and compactness for a two-dimensional resonant system of conservation laws*, [Communications in Mathematical Sciences](#) 5(2) (2007), 253-265.
- 124 (with Y.-J. Liu, C.-W. Shu & M. Zhang) *Non-oscillatory hierarchical reconstruction for central and finite volume schemes*, [Communications in Computational Physics](#) 2(5) (2007), 933-963.
- 125 (with W. Zhong) *Novel entropy stable schemes for 1D and 2D fluid equations*, “Hyperbolic Problems: Theory, Numerics, Applications”, Proceedings of the 11<sup>th</sup> International Conference held in Lyon, July 2006 (S. Benzoni-Gavage & D. Serre, eds.), Springer, 2007, pp. 1111-1120.
- 126 (with Y.-J. Liu, C.-W. Shu & M. Zhang)  *$L^2$ -stability analysis of the central discontinuous Galerkin method and a comparison between the central and regular discontinuous Galerkin methods [highlighted paper]*, [Mathematical Modeling and Numerical Analysis](#), 42(4) (2008) 593-607.
- 127 (with B. Cheng) *Long time existence of smooth solutions for the rapidly rotating shallow-water and Euler equations*, [SIAM Journal on Mathematical Analysis](#) 39(5) (2008), 1668-1685.
- 128 (with D.-M. Wei) *On the global regularity of sub-critical Euler-Poisson equations with pressure*  
[Journal of the European Mathematical Society](#) 10 (2008) 757-769.
- 129 (with S. Nezzar & L. Vese) *Multiscale hierarchical decomposition of images with applications to deblurring, denoising and segmentation*, [Communications in Mathematical Sciences](#) 6(2) (2008), 281-307.
- 130 (with S. Engelberg) *Recovery of edges from spectral data with noise—a new perspective*  
[SIAM Journal on Numerical Analysis](#) 46(5) (2008) 2620-2635.
- 131 (with J. Zou) *Novel edge detection methods for incomplete and noisy spectral data*  
[Journal of Fourier Analysis and Applications](#) 14(5) (2008) 744-763.
- 132 (with S.-Y. Ha) *From particle to kinetic and hydrodynamic descriptions of flocking*  
[Kinetic and Related Models](#) 1(3) (2008) 415-435.
- 133 (with D. Chae) *On the finite time blow-up of the Euler-Poisson equations in  $\mathbb{R}^n$*   
[Communications in Mathematical Sciences](#) 6(3) (2008) 785-789.
- 134 (with S. Mishra) *Vorticity preserving schemes using potential-based fluxes for the system wave equation*, “Hyperbolic Problems: Theory, Numerics, Applications”, vol II, Proceedings of the 12<sup>th</sup> International Conference held in Maryland, June 2008, (E. Tadmor, J.-G. Liu & A. Tzavaras, eds.), AMS Proc. Symp. Applied Math. 67(2) (2009) 795-804.
- 135 (with B. Cheng) *An improved local blow-up condition for Euler-Poisson equations with attractive forcing*, [Physica D](#) 238(20) (2009) 2062-2066.

- 136 (with P. Athavale) *Multiscale image representation using integro-differential equations* [Inverse Problems and Imaging](#) 3(4) (2009), 693-710.
- 137 (with P. Athavale) *Novel integro-differential equations in image processing and its applications*, Computational Imaging VIII (C. A. Bouman, I. Pollak, P. J. Wolfe eds.), Proceedings of SPIE meeting held Jan. 2010, San Jose, vol. 7533, 75330S.
- 138 (with H. Liu & D.-M. Wei) *Global regularity of the 4D restricted Euler equations* [Physica D](#) 239(14) (2010) 1225-1231.
- 139 (with S. Mishra) *Constraint preserving schemes using potential-based fluxes. I. Multidimensional transport equations*, [Communications in Computational Physics](#) 9(3) (2011), 688-710.
- 140 (with S. Mishra) *Potential-based, constraint preserving, genuinely multi-dimensional schemes for systems of conservation laws*, “Nonlinear Partial Differential Equations and Hyperbolic Wave Phenomena”, Proceedings of the 2008-2009 Research Program held in the Centre for Advanced Study, Oslo (H. Holden & K. H. Karlsen, eds.), AMS, Contemporary Mathematics 526 (2010), 295-314.
- 141 (with P. Athavale) *Integro-differential equations based on  $(BV, L^1)$  image decomposition* [SIAM Journal on Imaging Sciences](#) 4(1) (2011), 300-312.
- 142 (with S. Mishra) *Constraint preserving schemes using potential-based fluxes. II. Genuinely multi-dimensional systems of conservation laws* [SIAM Journal on Numerical Analysis](#) 49(3) (2011), 1023-1045.
- 143 (with U. Fjordholm & S. Mishra) *Well-balanced and energy stable schemes for the shallow water equations with discontinuous topography*, [Journal of Computational Physics](#) 230(14) (2011), 5587-5609.
- 144 (with Y.-J. Liu, C.-W. Shu & M. Zhang) *Central local discontinuous Galerkin methods on overlapping cells for diffusion equations*, [Mathematical Modeling and Numerical Analysis](#) 45 (2011), 1009-1032.
- 145 (with C. Tan) *Hierarchical construction of bounded solutions of  $\operatorname{div}U = F$  in critical regularity spaces*, in “Nonlinear Partial Differential Equations”, Proceedings of the 2010 Abel Symposium held in Oslo, Sep. 2010 (H. Holden & K. Karlsen eds.) [Abel Symposia](#) 7, Springer 2011, pp. 255-269.
- 146 (with S. Motsch) *A new model for self-organized dynamics and its flocking behavior* [Journal of Statistical physics](#) 144(5) (2011) 923-947.
- 147 (with S. Mishra) *Constraint preserving schemes using potential-based fluxes. III. Genuinely multi-dimensional schemes for MHD equations* [Mathematical Modeling and Numerical Analysis](#) 46 (2012), 661-680.
- 148 (with D. Wei & H. Bae) *Critical thresholds in multi-dimensional Euler-Poisson equations with radial symmetry*, [Communications in Mathematical Sciences](#) 10(1) (2012) 75-86.
- 149 (with K. Waagan) *Adaptive spectral viscosity for hyperbolic conservation laws* [SIAM Journal on Scientific Computation](#) 34(2) (2012) A993-A1009.
- 150 (with U. Fjordholm & S. Mishra) *Arbitrarily high order accurate entropy stable essentially non-oscillatory schemes for systems of conservation laws* [SIAM Journal on Numerical Analysis](#) 50(2) 2012 544-573.
- 151 (with H. Bae & A. Biswas) *Analyticity and decay estimates of the Navier Stokes equations in critical Besov spaces*, [Archive for Rational Mechanics and Analysis](#) 205 (2012) 963-991.
- 152 *A review of numerical methods for nonlinear partial differential equations* [Bulletin of AMS](#) 49(4) (2012) 507-554.
- 153 (with U. Fjordholm & S. Mishra) *Entropy stable ENO scheme*, “Hyperbolic Problems: Theory, Numerics, Applications”, vol 1, Proceedings of the 13<sup>th</sup> International Conference held in Beijing, June 2010 (T. Li & S. Jiang, eds.), Contemporary Appl., Math. 17, Higher Ed. Press (2012) 12-27.
- 154 (with U. Fjordholm & S. Mishra) *ENO reconstruction and ENO interpolation are stable* [Foundations of Computational Mathematics](#) 13(2) (2013), 139-159.
- 155 (with A. Biswas) *Dissipation vs. quadratic nonlinearity: from a priori energy bound to higher-order regularizing effect*, [Nonlinearity](#) 27 (2014) 545-562.

- 156 (with S. Motsch) *Heterophilious dynamics enhances consensus*, [SIAM Review](#) 56(4) (2014) 577-621.
- 157 (with C. Tan) *Critical thresholds in flocking hydrodynamics with nonlocal alignment* [Proceedings of the Royal Society A](#) 372 20130401 (2014).
- 158 (with C. Bardos) *Stability and spectral convergence of Fourier method for nonlinear problems. On the shortcomings of the 2/3 de-aliasing method*, [Numerische Mathematik](#) 129 (2014) 749-782.
- 159 *Mathematical aspects of self-organized dynamics: consensus, emergence of leaders and social hydrodynamics* (invited article), [SIAM News](#) 48(9) (2015).
- 160 (with J. A. Carrillo, Y.-P. Choi and C. Tan) *Critical thresholds in 1D Euler equations with nonlocal forces*, [Mathematical Models and Methods in Applied Sciences](#) 26(1) (2016) 185-206.
- 161 *Hierarchical construction of bounded solutions in critical regularity spaces* [Communications on Pure and Applied Mathematics](#) 69(6) (2016) 1087-1109.
- 162 *Perfect derivatives, conservative differences and entropy stable computation of hyperbolic conservation laws*, [Discrete and Continuous Dynamical Systems-A](#) 36(8) (2016) 4579-4598.
- 163 (with U. Fjordholm & S. Mishra) *On the computation of measure-valued solutions* [Acta Numerica](#) 25 (2016) 567-679.
- 164 (with U. Fjordholm, R. Käppeli & S. Mishra) *Construction of approximate entropy measure valued solutions for hyperbolic systems of conservation laws* [Foundations of Computational Mathematics](#) 17 (2017) 763-827.
- 165 (with R. Shvydkoy) *Eulerian dynamics with a commutator forcing* [Transactions of Mathematics and its Applications](#) 1(1) (2017) 1-26.
- 166 (with R. Shvydkoy) *Eulerian dynamics with a commutator forcing II: flocking* [Discrete and Continuous Dynamical Systems-A](#) 37(11) (2017) 5503-5520.
- 167 (with S. He) *Global regularity of two-dimensional flocking hydrodynamics* [Comptes rendus - Mathématique Ser. I](#) 355 (2017) 795-805.
- 168 (with R. Shvydkoy) *Eulerian dynamics with a commutator forcing III: Fractional diffusion of order  $0 < \alpha < 1$* , [Physica D](#) 376-377 (2018) 131-137.
- 169 (with A. Chertock, S. Cui, A. Kurganov & S.-N. Özcan) *Well-balanced schemes for the Euler equations with gravitation: conservative formulation using global fluxes* [Journal of Computational Physics](#) 358 (2018) 3652.
- 170 (with S. He) *Suppressing chemotactic blow-up through a fast splitting scenario on the plane* [Archive for Rational Mechanics and Analysis](#) 232 (2019) 951-986.
- 171 (with O. Bhatoo, A. Peer, D. Tangman & A. Saib) *Efficient conservative second order central upwind schemes for option pricing problems*, [Journal of Computational Finance](#) 22(5) (2019) 71-101.
- 172 (with J. Morales & J. Peszek) *Flocking with short-range interactions* [Journal of Statistical Physics](#) 176 (2019) 382-397.
- 173 (with O. Bhatoo, A. Peer, D. Tangman & A. Saib) *Conservative third-order central-upwind schemes for option pricing problems*, [Vietnam Journal of Mathematics](#) 47(4) (2019) 813-833.
- 174 (with A. Gouasmi, K. Duraisamy & S. M. Murman) *A minimum entropy principle in the compressible multicomponent Euler equations*, [Mathematical Modelling and Numerical Analysis](#) 54 (2020) 373-389.
- 175 (with R. Shu) *Flocking hydrodynamics with external potentials* [Archive for Rational Mechanics and Analysis](#) 238 (2020) 347-381.
- 176 (with R. Shvydkoy) *Topologically-based fractional diffusion and emergent dynamics with short-range interactions*, [SIAM Journal on Mathematical Analysis](#) 52(6) (2020) 5792-5839.
- 177 (with B. Gess & J. Sauer) *Optimal regularity in time and space for the porous medium equation* [Analysis & PDE](#) 13(8) (2020) 2441-2480.
- 178 (with R. Shu) *Anticipation breeds alignment* [Archive for Rational Mechanics and Analysis](#) 240 (2021) 203-241.



- 179 *On the mathematics of swarming: emergent behavior in alignment dynamics*  
[Notices of the AMS 68\(4\) \(2021\) 493-503.](#)
- 180 (with S. He) *A game of alignment: collective behavior of multi-species*  
[Annal. de l'institut Henri Poincaré \(c\) Non Linear Analysis 38\(4\) \(2021\) 1031-1053.](#)
- 181 (with R. Shvydkoy) *Multi-flocks: emergent dynamics in systems with multi-scale collective behavior*  
[Multiscale Modeling and Simulation 19\(2\) \(2021\) 1115-1141.](#)
- 182 (with R. Shu) *Newtonian repulsion and radial confinement: convergence towards steady state*  
[Mathematical Models and Methods in Applied Sciences 31\(7\) \(2021\) 1297-1321.](#)
- 183 (with S. He) *Multi-species Patlak-Keller-Segel system*  
[Indiana University Math. Journal 70\(4\) \(2021\) 1577-1624.](#)
- 184 (with D. Hardin, E. Saff & R. Shu) *Dynamics of particles on a curve with pairwise hyper-singular repulsion,* [Discrete and Continuous Dynamical Systems 41\(12\) \(2021\) 5509-5536.](#)
- 185 (with S. He & A. Zlatoš) *On the fast spreading scenario,* [Communications of the AMS 2 \(2022\) 149-171.](#)
- 186 (with D. Lear, T. M. Leslie & R. Shvydkoy) *Geometric structure of mass concentration sets for pressureless Euler alignment systems,* [Advances in Mathematics 401\(4\) \(2022\) 108290.](#)
- 187 (with C. Tan) *Critical threshold for global regularity of Euler-Monge-Ampère system with radial symmetry,* [SIAM Journal on Mathematical Analysis 54\(4\) \(2022\) 4277-4296.](#)
- 188 (with S. Foucart & M. Zhong) *On the sparsity of LASSO minimizers in sparse data recovery*  
[Constructive Approximation \(2022\).](#)
- 189 (with P.-E Jabin & H.-Y. Lin) *Commutator method for averaging lemmas*  
[Analysis & PDE 15\(6\) \(2022\) 1561-1584](#)  
(with P.-E Jabin & H.-Y. Lin) *A new commutator method for averaging lemmas*  
[Séminaire Laurent Schwartz EDP et applications \(2019-2020\), Talk no. 10.](#)
- 190 (with J. Lu) *Hydrodynamic alignment with pressure II. Multispecies*  
[Quarterly of Applied Mathematics \(2022\).](#)
- 191 *Swarming: hydrodynamic alignment with pressure,* Bulletin of AMS, [ArXiv:2208.11786 \(2022\).](#)
- 192 *Long time and large crowd dynamics of fully discrete Cucker-Smale alignment models*  
Pure and Applied Functional Analysis, [ArXiv:2201.02281 \(2022\).](#)
- 193 (with J Lu & A. Zenginoglu) *Swarm-based gradient descent method for non-convex optimization,*  
[arXiv:2211.17157 \(2022\).](#)