CURRICULUM VITAE

Hongkai Zhao

Education:

Ph.D. Mathematics, 6/1996, University of California, Los Angeles
M.S. Applied Mathematics, 8/1992, University of Southern California
B.S. Applied Mathematics, 6/1990, Beijing University, Beijing, P.R.China

Academic Appointments:

7/2016–   Chancellor's Professor, UCI.
7/2016–   Chair, Department of Mathematics, UCI.
7/2007–   Professor, Department of Mathematics, UCI
7/2010–6/2013 Chair, Department of Mathematics, UCI.
7/2004–   Department of Computer Science, UCI
3/2004–   Member, Institute for Mathematical Behavioral Sciences, UCI.
7/2003–6/2007 Associate Professor, Department of Mathematics, UCI.
7/1999–6/2003 Assistant Professor, Department of Mathematics, UC, Irvine.
9/1998–7/1999 Research Associate, Department of Mathematics, Stanford.
9/1996–9/1998 Gábor Szegö Assistant Professor, Department of Mathematics, Stanford University.

Honors:

ICERM Research Fellow, fall 2017.
Outstanding Contribution to Undergraduate Education Award, School of Physical Sciences, UCI, 2015, 2002.
Changjiang Guest Professor, Peking University, 6/2009-6/2012.
Feng Kang Prize in scientific computing, 2007.
Alfred P. Sloan Research Fellow, 2002-2004.
UCI Faculty Career Development Award, 99-00.

Funding:

NSF grant (Co-PI) DMS-1622490, 2016-2019.
NSF grant (PI) DMS-1418422, 2014-2017.
NSF grant (PI) DMS-1115698, 2011-2014.
ONR grant (PI), 5/2011-4/2014.
NGA NURI (National Geospatial-Intelligence Agency University Research Initiatives) (Co-PI), 5/2010-4/2012.
NSF PRISM (Proactive Recruitment in Introductory Science and Mathematics) (Co-PI), 9/2009-8/2014.
NSF grant (PI), 7/2008-6/2011.
ARO MURI grant (Co-PI), 5/2007-1/2013.
ONR grant (PI), 2/2006-1/2009.
NSF grant (PI), 8/2005-6/2008.
DARPA MURI (Multidisciplinary University Research Initiative)grant (Co-PI) 2002-2008.

ONR grant (PI), 2001-2005.
NSF SCREMS grant (Co-PI), 2001-2003.
NSF grant (PI), 8/97-7/01.
ONR STTR grant (Academic PI), 7/98-7/99.

Editorial Board:

SIAM Multiscale Modeling and Simulation
Progress in Mathematics
Annals of Mathematical Sciences and Applications
Journal of Computational Mathematics
Methods and Applications of Analysis
Geometry, Imaging and Computing

Patents:

1. U. S. Patent (7,031,538) "Method and Apparatus for Feature Based Quantization and Compression of Data", L.T. Cheng, B. Merriman, S. Osher, H. Zhao, and H. Zhou.

2. U. S. Patent (7,027,658) "Geometrically Accurate Compression and Decompression", S. Osher and H. Zhao

Students and Postdocs:

Undergraduate Student Supervised:
Joshua Neil, Edmund Chung, May Liang, Ding Xiao, Peter Hall, Rui Xiang, Ying Xiao, Nicole Zhang
Ph.D Student Supervised:
Lily Bai (Standard Chartered Bank, Singapore)
Songting Luo (Assistant Professor (tenure track), Math, Iowa State University)
Hao Gao (Medical Physicist, Duke University)
Jian Liang (Wells Fargo R&D)
Jie Feng (Goldman Sachs)
Changjian Zou (Groupon)
Cheng Zhang (Postdoc, University of Washington and Fred Hutchinson Cancer Research Center, Seattle)
Jun Fang (Industry)
Current graduate students:
Jennifer Bryson, Rui Xiang
Postdoc Mentored:
Man-chung Yeung, Associate Professor at University of Wyoming.
Jian-Jun Xu, Associate Professor at Xiangtan University, China.
Songming Hou, Associate Professor, Louisiana Tech University.
Kai Huang, Associate Professor, Florida International University.
Daniel Alfaro Vigo, IMPA, Brazil.
Eric Chung, Associate Professor, The Chinese University Of Hong Kong.
Jie Liu, Assistant Professor, National University of Singapore.
Shingyu Leung, Associate Professor, The Hong Kong University of Science and Technology.
Ying Li, Associate Professor, Saint Francis University.

Edward Castillo, Assistant Professor, Department of Radiation Physics, MD Anderson Cancer Center and Adjunct Assistant Professor at Rice University.
Peng Song, Research Scientist, Institute of Applied Physics and Computational Mathematics, Beijing.
Frederic Park, Assistant Professor, Whittier College.
Ernie Esser, Postdoc Researcher, UC Irvine.
Ting Zhou, Associate Professor, Northeastern University.
Hongyu Liu, Assistant Professor, Hong Kong Baptist University.
Alvin Wong, Postdoc Researcher.
Rongjie Lai, Assistant Professor (tenure track), RPI.
Hayden Schaeffer, Assistant Professor (tenure track), Carnegie Mellon University.
Leonardo Andrés Zepeda Núñez, Postdoc Researcher, Lawrence Livermore National Laboratory, Berkeley.
Yiming Zhong (current)

Invited Presentation:

Conference:

(Plenary) Frontiers in Applied and Computational Mathematics, 8/24-8/26, 2018, New Jersey Institute of Technology.
International Conference on Spectral and High Order Methods, 7/2018, Imperial College, London.
International Workshop on Computational Mathematics, 6/4-6/8, 2018, Suzhou, China.
Workshop on Geometry, Imaging, and Computing, 3/24-3/26, 2018, Harvard University.
International Conference of Applied Mathematics, 1/3-1/6, 2018, Miami.
(Plenary) The 6th ICCM CAM Conference on Geometry and Imaging, 12/15-12/17, 2017, Tsinghua University, Beijing.
Workshop on "Recent Advances in Seismic Modeling and Inversion: From Analysis to Applications", ICERM, Brown University, 11/6-11/10, 2017.
(Plenary) Workshop on Frame Theory and Sparse Representation for Complex Data, Institute for Mathematical Sciences, Singapore, 5/29-6/2, 2017.
Workshop on "Optical Imaging and Inverse Problems", IMA, Minneapolis, 2/13-2/17, 2017.
(Plenary) The third International workshop on Development and Application of High-Order Numerical Methods, USTC, China, 12/17-12/19, 2016.
Workshop on numerical methods for Hamilton-Jacobi equations in optimal control and related fields, Linz, Austria, 11/21-11/25, 2016.
(Plenary) The 7th International Congress of Chinese Mathematicians, Beijing, China, 8/6-8/11, 2016.
(Keynote) Workshop On Mathematics in Imaging Science and Data Analysis, Peking University, China, 8/4-8/5, 2016.
(Plenary) International Conference on Information and Computational Science, Dalian, China, 8/2-8/6.
International conference on Recent progress on numerical analysis of higher order methods and industrial mathematics related to computational fluid dynamics, NIMS, Korea, 7/21-7/23, 2016.

International Conference on Applied Mathematics, Hong Kong, 5/30-6/2, 2016.

IPAM workshop on Shape Analysis and Learning by Geometry and Machine, UCLA, 2/8-2/12, 2016.

Workshop on Computational Seismology, Tsinghua Sanya International Mathematics Forum, Sanya, China, 1/4–1/8, 2016.

Workshop on Numerical Methods for Nonlinear Problems, Tsinghua Sanya International Mathematics Forum, Sanya, China, 1/11–1/15, 2016.

Numerical and Multiscale issues for Partial and Integral Differential Equations, in honor of Bjorn Engquist's 70th birthday, UT Austin, 10/14-10/17, 2015.

Frontiers of Applied and Computational Mathematics, in honor of Bjorn Engquist's 70th birthday, Peking University, China, 8/7-8/9, 2015.

International Conference on Computational Mathematics and Sciences, Xi'An, China, 6/6–6/8, 2015.

(Plenary) Conference on Waves and Inverse Problems, in honor of Bill Symes' 60th birthday, Michigan State University, 4/9-4/11, 2015.

BIRS (BANFF) workshop on Numerical Optimal Transportation, Banff, Canada, 2/15/15-2/20, 2015.

(Keynote) Statistics and Computational Interface to Big Data, IAS of HKUST, 1/4-1/16, 2015. (declined)

Multiscale Modeling and Simulation of Defect Problems in Materials Science, IAS of HKUST, 12/15-12/19, 2014.

(Plenary) International Conference on Inverse Problems and Optimal Control, The Chinese University of Hong Kong, 12/4-12/6, 2014.

International Conference on Applied Mathematics, City University of Hong Kong, Hong Kong, 12/1-12/5, 2014.

(Plenary) The 6th Annual National Conference on Inverse Problems in China, Harbin, China, 7/23-7/25, 2014.

International Workshop on Multiscale Modeling and Simulation, in honor of Russel Caflisch's 60th birthday, IPAM, UCLA, 4/25-4/27, 2014.

International Workshop on Fluid-Structure Interaction Problems, Shanghai, 7/27-7/30, 2013.

6th International Congress of Chinese Mathematicians, Taipei, 7/14-7/19, 2013.

Workshop on Inverse Problems in Scattering and Imaging, Purdue University, 4/13, 2013.

Clifford Lectures, Tulane University, 3/13-3/16, 2013.

CMM Workshop on Coupled-Physics Inverse Problems, Santiago, Chile, 1/3-1/5, 2013.

International Conference on Imaging Science, in honor of Stanley Osher's 70th birthday, Hong Kong, 12/12-12/14, 2012.

Oberwolfach Workshop on Computational Inverse Problems, Germany, 10/21-10/27, 2012.

International Conference on Inverse Problems and Applications, in Honor of Gunther Uhlmann's 60th Birthday, Hangzhou, China, 9/17-21, 2012.

Inverse Problems and PDE Control, Chengdu, China, 7/30-8/3, 2012

International Conference on the Frontier of Computational and Applied Mathematics, in honor of Tony Chan's 60th birthday,IPAM, UCLA, 6/8-6/10, 2012.

2012 Great Lake SIAM Spring Conference, Detroit, 4/21, 2012

Advances in Scientific Computing, Imaging Science and Optimization, in honor of 70th birthday of Stanley Osher, IPAM, UCLA, 4/4-4/6, 2012.

Eighth International Conference on Scientific Computing and Applications, Las Vegas, 4/1-4/4, 2012.

The International Conference on Scientific Computing, in honor of Tony Chan's 60th birthday, Hong Kong, 1/4-1/7, 2012.

Transport Processes at Fluidic Interfaces: From Experimental to Mathematical Analysis, Aachen, Germany, 12/5-12/7, 2011.

Analytic and Geometric Methods in Medical Imaging, Issac Newton Institute for Mathematical Sciences, Cambridge, UK, 8/22-8/26, 2011.

International Conference on Interdisciplinary Applied and Computational Mathematics, Hangzhou, China, 6/17-6/21, 2011.

Workshop on Fluid-Structure Interaction Problems, 5/2011, Taiwan.

Workshop on Computational Wave Propagation, 4/2011, Michigan State University. Michigan.

Dagstuhl-Seminar on "Innovations for Shape Analysis: Models and Algorithms", 4/2011, Schloss Dagstuhl - Leibniz-Zentrum fur Informatik, Germany.

Workshop on "Advancing numerical methods for viscosity solutions and applications", 2/2011, Banff, Canada.

International Workshop on Image Processing, Computer Vision, Compressive sensing and Related Applications, 12/2010, Seoul, Korea.

Inverse Problems: Theory and Applications, 11/2010, MSRI, Berkeley, CA.

8th Annual National Academies Keck Futures Initiative (NAKFI) conference, "Seeing the Future with Imaging Science", 11/2010, Arnold and Mabel Beckman Center, CA.

Workshop on Computational Mathematics and Scientific Computing, 9/2010, Beijing, China.

Pacific Rim Conference on Mathematics, 6/2010, Stanford, CA.

Workshop on Inverse Transport Theory and Tomography, 5/2010, Banff International Research Station, Banff, Canada.

Minicourse on Mathematics of Emerging Biomedical Imaging IV, 3/2010, Institut Henri Poincaré, Paris.

Interdisciplinary Workshop on Mathematical Problems, Models and Methods in Biomedical Imaging, 2/2010, IPAM, UCLA.

AFOSR Workshop on Computational Control, 11/2009, Monterey, CA.

The First International Conference on Frontiers in Computational Mathematics, 12/2008, Guilin, China

Huangguoshu International Interdisciplinary Conference on Biomedical Mathematics, 11/2008, Guizhou, China.

International Workshop on Scientific Computing, 6/2008, Beijing, China.

Workshop on Multiscale Modeling, Analysis, and Simulations, 3/2008, Michigan.

Fourth International Congresses of Chinese Mathematicans, 12/2007, China.

Workshop on Interface Problems, 11/2007, Statistical and Applied Mathematical Sciences Institute, NC.

Interdisciplinary Workshop on Mathematical Methods in Biomedical Imaging and Intensity-Modulated Radiation Therapy (IMRT), 10/2007, The Centro di

Ricerca Matematica (CRM) Ennio De Giorgi, Pisa, Italy

Evolution of Interfaces and Applications, 5/2007, France.

Clifford Lecture, 3/2007, Tulane University.

Numerical Methods for Degenerate Elliptic Equations and Applications, 12/2006, Banff, Canada.

Inverse Problems and Applications, 7/2006, Banff, Canada.

Recent Mathematical and Computational Developments of Maxwell's Equations, 7/2006, Weihai, China.

IMA Workshop on Imaging from Wave Propagation, 10/2005, Minnesota.

High Frequency Wave Propagation Conference, 9/2005, Center for Scientific Computation and Mathematical Modeling, University of Maryland.

Workshop on Level Set Methods for Direct and Inverse Problems, 9/2005, Linz, Austria.

IX Workshop on Partial Differential Equations, 7/2005, IMPA, Rio de Janeiro, Brazil.

International Conference on Multiscale Modeling and Scientific Computing (in honor of Enquist's 60th Birthday), 6/2005, Beijing.

International Federation for Information Processing (IFIP) conference on Free and Moving Boundaries Analysis, Simulation and Control, 12/2004, Houston.

INTERPHASE04, Numerical Methods for Free Boundary Problems, 9/2004, Rome, Italy.

International Conference on Numerical and Applied PDEs, 6/2004, Changchun, China.

International Workshop on Wave Propagations (in honor of Papanicolaou's 60th Birthday conference), 6/2004, Beijing, China;

SIAM meeting on Materials Sciences, 5/2004, LA, CA.

International Conference on Numerical Methods in Imaging Science and Information Processing, 12/2003, Singapore.

Workshop on Computational Techniques for Moving Interfaces, 8/2003, Pacific Institute for the Mathematical Sciences, Banff, Canada.

Applied Inverse Problems: Theoretical and Computational Aspects, 5/2003, Institute for Pure and Applied Mathematics (IPAM), LA, CA.

Workshop on Surface Reconstruction, 4/2003, Center for Discrete and Theoretical Computer Science (DIMACS), NJ.

Workshop on Image Processing and Computational Methods, 3/2003, Kentucky.

Invited Lecturer for Winter School in Computational Mathematics, the REsearch Concil of Norway, 3/2003, Geilo, Norway.

Mathematical Geophysics Summer School, 8/2002, Stanford.

Second International Conngresses of Chinese Mathematicans, 12/2001, Taiwan

MSRI Workshop on Inverse Problems and Applications , 11/2001, Berkeley, CA.

IEEE Workshop on Variational and Level Set Methods in Computer Vision (VLSM 2001), 7/2001, Vancouver.

G.I. Taylor SES Medalist Symposium in honor of Steve Davis, 2001 Mechanics and Materials Conference, 6/01, San Diego

Workshop on Geometrically Based Motion, Institute of Pure and Applied Mathematics, 4/01, UCLA.

International Conference in Scientific and Engineering Computing, 3/01, Beijing, China
Nonlinear Analysis 2000, 5/00, Courant Institute, NY International Union of Theoretical and Applied Mechanics, 8/97, Boulder, CO

Colloquium and Seminar:
Claremont Colleges Mathematics Colloquia, 4/18/18, The Claremont Colleges.
Applied Mathematics Seminar, 3/13/18, Simon Fraser University.
Center for Nonlinear Analysis Colloquium, 3/21/17, Carnegie Mellon University.
Numerical Analysis Seminar, 9/30/16, University of Texas, Austin.
Applied Mathematics Colloquium, 9/20/16, Columbia University.
School of Mathematics Colloquium, 2/29/16, Georgia Tech.
Applied Mathematics Seminar, 10/23/15, UC Santa Bababra.
Mathematics Department Colloquium, 9/11/15, Auburn University.
School of Mathematics Colloquium, 9/10/15, Georgia Tech.
Kwan Chao-Chih Distinguished Lecture, 8/24/2015, Institute of Systems Sciences, Chinese Academy of Sciences.
Mathematics Department Colloquium, 5/4/15, Rensselaer Polytechnic Institute.
Applied Mathematics Seminar, 4/15/15, Stanford University.
CSCAMM seminar, 1/28/15, University of Maryland.
Applied Mathematics Seminar, 11/19/2014, Caltech.
Numerical Analysis Seminar, 10/7/2014, North Carolina State University.
Applied Mathematics Seminar, 10/6/2014, Duke University.
Mathematics Department Colloquium, 5/2014, UCLA.
Applied and Computational Mathematics and Statistics Colloquium, 4/2012, University of Notre Dame.
Applied Mathematics and Analysis Seminar, 3/2012, Duke University.
Numerical Analysis Seminar, 3/2012, North Carolina State University.
Computational and Applied Mathematics Colloquium, 3/2012, Penn State University.
Numerical Analysis Seminar, 9/2010, University of Texas, Austin.
Computational and Applied Mathematics Seminar, 4/2010, Purdue University.
Applied Mathematics Colloquium, 4/2010, University of Notre Dame.
Scientific Computing and Numerics Seminar, 4/2010, Cornell University.
Applied mathematics seminar, 3/2010, Universidad Carlos III de Madrid, Spain.
Applied mathematics and Statistics Seminar, 3/2010, University of Warwick, UK.
Applied Mathematics Seminar, 3/2009, Stanford University.
Claremont Colleges Mathematics Colloquium, 12/2008.
Applied Mathematics Colloquium, 3/2008, Illinois Institute of Technology.
Applied Mathematics Seminar, 3/2007, University of Southern California.
Applied Mathematics Seminar, 3/2007, Courant Institute.
Applied Mathematics Seminar, 3/2007, State University of New York, Stony Brook.
Applied Mathematics Seminar, 3/2007, Columbia University.

Applied Mathematics Colloquium, 2/2007, Caltech.
Applied Mathematics Seminar, 2/2007, UC Merced.
Colloquium of the Math department, 2/2006, University of Maryland.
Applied Mathematics Colloquium, 2/2006, UCLA.
Applied and Computational Mathematics Seminar, 9/2005, Georgia Institute of Technology.
Institute for Computational and Mathematical Engineering seminar, 2/2005, Stanford University.
Applied Mathematics Seminar, 1/2005, University of Washington.
Inverse Problem Seminar, 1/2005, University of Washington.
Computational and Applied Mathematics Colloquium, 12/2004, Rice University.
Applied Mathematics Seminar, 11/2003, Duke University, NC.
Numerical Analysis Seminar, 11/2003, NC State, NC.
Applied Mathematics Seminar, 5/2003, UC Davis.
Colloquium of Princeton Institute for Computational Science and Engineering, 3/2003, Princeton.
Applied Mathematics Seminar, 2/2003, University of Southern California.
Applied Mathematics Seminar, 11/2002, University of Texas, Austin.
TICAM colloquium, 11/2003, University of Texas, Austin.
Numerical Analysis Seminar, 6/2001, UCSD, CA
Applied Mathematics Seminar, 2/2001, NC State University, NC
Applied Mathematics Colloquium, 2/2001, Princeton, NJ
Applied Mathematics Colloquium, 2/2000, UCLA, CA
Scientific Computing Seminar, 11/1999, Brown University, PR
Numerical Analysis Seminar, 11/1998, Lawrence Berkeley National Laboratory
Applied Mathematics Seminar, 9/1998, Penn State University, PA
Numerical Analysis Seminar, 9/1997, Courant Institute
Numerical Analysis Seminar, 9/1997, North Carolina State University
Applied Mathematics Seminar, 9/1997, University of North Carolina, Charlotte
Scientific Computing and Computational Mathematics Seminar, 3/1997, Stanford University
Applied Mathematics Seminar, 1/1997, University of California, Davis
Applied Mathematics Seminar, 11/1996, Stanford University
Applied Mathematics Seminar, 1/1996, California Institute of Technology

Professional Activities:

Organizer and Committee Member:
AMS Representative to the Program Committee for Joint International Mathematics Meeting by AMS and CMS, Shanghai, China, 6/11-6/14, 2018.
AMS Fan Fund Committee, 2/2016–1/2019.
Organizer for IPAM workshop on Shape Analysis and Learning by Geometry and Machine, UCLA, 2/8-2/12, 2016.
Organizer for conference "Frontiers of Applied and Computational Mathematics", in honor of Bjorn Engquist's 70th birthday, Peking University, China, 8/7-8/9, 2015.
Organizer for "Medical Image Computing: Challenging Issue and Future Direction", 6/8-6/12, Yonsei University, Korea, 2015.

Organizer for "International Workshop on Multiscale Modeling and Simulation", in honor of 60th birthday of Russell Caflisch, IPAM, UCLA, 4/25-4/27, 2014.

Organizer for the minisymposium "Recent Development on Photoacoustic Tomography" at SIAM annual meeting, San Diego, 2013.

Organizer for "The International Conference on the Frontier of Computational and Applied Mathematics", in honor of 60th birthday of Tony Chan, IPAM, 6/8-6/10, 2012.

Organizer (chair) for International conference on "Frontiers of Computational and Applied Mathematics", 10/2011. Beijing, China.

Organizer for "The 2011 international conference on biomedical imaging", 8/2011, Shanghai, China.

Organizer for Workshop on "Advancing numerical methods for viscosity solutions and applications", 2/2011, Banff International Research Station, Banff, Canada.

Organizer for Park City Mathematics Institute (PCMI) 2010 Summer Program, 7/2010, Utah.

Organizer for "Interdisciplinary Workshop on Mathematical Problems, Models and Methods in Biomedical Imaging", 2/2010, IPAM, UCLA.

Organizer for Workshop on "Recent Developments in Numerical Methods for Nonlinear Hyperbolic Partial Differential Equations and their Applications", 9/2008, Banff International Research Station, Banff, Canada.

Program Leader for 2007-08 Program on Random Media at Statistical and Applied Mathematical Sciences Institute (SAMSI), North Carolina.

Program committee for 1st International Conference on Scale Space Methods and Variational Methods in Computer Vision, 5/2007, Ischia, Italy.

Organizer for Recent Developments in Numerical Methods and Algorithms for Geometric Evolution Equations, 3/2007, Mathematical Sciences Research Institute (MSRI).

Minisymposium on "Fast Sweeping Methods for Hamilton-Jacobi Equations", SIAM Conference on Analysis of Partial Differential Equations, 7/2006, Boston.

Program Committee of the 3rd IEEE Workshop on Variational, Geometric and Level Set Methods in Computer Vision, held in conjunction with the 10th International Conference in Computer Vision, 10/2005, Beijing, China.

International Conference on Multiscale Methods and Partial Differential Equations, 8/2005, UCLA;

Invited Minisymposium on Level Set Methods and Inverse Problems, SIAM annual meeting, 7/2005, New Orleans.

International Program Committee of Computer Graphics International, 6/2005, Stony Brook, New York.

International Conference on Scientific Computing, 6/2005, Nanjing, China.

International Conference on Image Processing and Computer Vision, 12/2004, Hangzhou, China;

Organizer for IPAM program on geometric flow, UCLA, CA, 2/2004.

Organizer for ONR workshop on time reversal, Irvine, CA, 8/2003.

Organizer and main lecturer for image processing workshop, International Center for Computational Physics, Beijing, 8/2002.

Two minisymposia on: The Level Set Method and its Applications; and Time

Reversal and Wave Propagation in Complicated Media, SIAM 50th anniversary meeting, 7/2002, Philadelphia.

International Conference on Scientific Computing, Partial Differential Equations and Image Processing, On the Occasion of Stanley Osher's 60th birthday, 4/2002, UCLA.

Annual Southern California Applied Mathematics Symposium (SoCAMS).

Minisymposium on Computations and Analysis of Interfaces in Materials, Third SIAM Conference on Mathematical Aspects of Materials Science, 5/2000, Philadelphia.

Minisymposium on Numerical Methods for Computing Free Boundary Problems, SIAM 45th Anniversary Meeting, 7/1997, Stanford University, CA

Invited Lecturer:

Summer School on Multiscale/multiresolution analysis of surfaces and applications, Peking University, 7/2013, China.

Summer School on Mathematics, Science and Technology, Beijing International Center for Mathematical Research, 7/2012, China.

International Summer School of Fundamental Algorithms and Computable Modeling for High-Performance and Multi-scale Scientific and Engineering Computing, 7/2012, Nankai University, China.

Short Course on "Level set method for moving interface and free boundary problem", National Center for Theoretical Sciences, Taiwan, 5/2011.

Summer School on Image Processing, 8/2010, Peking University, China.

The Third International Summer School on Numerical Linear Algebra, 7/2009, Beijing, China.

Invited Lecturer for Winter School in Computational Mathematics, the REsearch Concil of Norway, 3/2003, Geilo, Norway.

Invited Lecturer Summer Program, 1998, Tsinghua University, China.

Selected Lecturer for Sophomore Dialogue at Stanford University.

Publications and Preprints:

1. H. Zhao, T.F. Chan, B. Merriman, S. Osher, *A Variational Level Set Approach to Multiphase Motion,* J. Comp. Phys. Vol. 127, 1996, pp 179-195.

2. T.Y. Hou, Z.L. Li, S. Osher, H. Zhao, *A Hybrid Method for Moving Interface Problems with Application to the Hele-Shaw Flow,* J. Comp. Phys. Vol. 134, 1997, pp 236-252.

3. B. Engquist, H. Zhao., *Absorbing Boundary Conditions for Domain Decomposition,* Applied Numerical Mathematics, Vol. 27, 1998, pp341-365.

4. A.Q. Li, V. Chalana, H. Zhao, *Simultaneous Spatio-Temporal Target Segmentation and Motion Estimation in a Variational Formulation,* Proceedings of SPIE on Applied Imagery Pattern Recognition (AIPR), vol 3584, Washington DC, 1998.

5. H. Zhao, B. Merriman, S. Osher, L. Wang, *Capturing the Behavior of Bubbles and Drops Using the Variational Level Set Approach,* J. Comp. Phys. Vol. 143, 1998, pp 495-518.

6. Z. Li, H. Zhao, H. Gao, *A Numerical Study of Electro-migration Voiding by Evolving Level Set Functions on a Fixed Cartesian Grid,* J. Comp. Phys. Vol. 152, 1999, pp 281-304.

7. D. Peng, B. Merriman, S. Osher, H. Zhao, M. Kang, *A PDE Based Fast Local Level Set Method,* J. Comp. Phys. Vol. 155, 1999, pp 410-438.

8. D. Peng, S. Osher, B. Merriman, H. Zhao, *The Geometry of Wulff Crystal Shapes and Its Relations with Riemann Problems,* Contemporary Mathematics, Vol. 238, AMS, Providence, 1999, pp 251-303, eds G.-Q Chen and E. DiBenedetto.

9. H. Zhao, S. Osher, B. Merriman, M. Kang, *Implicit and Non-parametric Shape Reconstruction from Unorganized Points Using Variational Level Set Method,* Computer Vision and Image Understanding. Vol. 80(3), 2000, pp 295-319.

10. H. Zhao, S. Osher, R. Fedkiw, *Fast Surface Reconstruction and Deformation Using the Level Set Method,* Proceedings of IEEE Workshop on Variational and Level Set Methods in Computer Vision (VLSM 2001), July, 2001, Vancouver.

11. P. Blomgren, G. Papanicolaou, H. Zhao, *Super-resolution in Time Reversal Acoustics,* Journal of the Acoustical Society of America, Vol 111, 2002, pp. 230-248.

12. J.K. Hunter, Z. Li and H. Zhao, *Reactive Autophobic Spreading of Drops,* J. Comp. Phys. Vol. 183, 2002, pp. 335-366.

13. M.J. Gander and H. Zhao, *Overlapping Schwarz Waveform Relaxation for the Heat Equation in n-Dimensions,* BIT, Vol. 42, No. 4, pp. 779-795, 2002.

14. H. Zhao and S. Osher, *Visualization, Analysis and Shape Reconstruction of Unorganized Data Sets,* book chapter in Geometric Level Set Methods in Imaging, Vision and Graphics, S. Osher and N. Paragios Editors, Springer, 2003.

15. J. Xu, H. Zhao, *An Eulerian Formulation for Solving Partial Differential Equations Along a Moving Interface*, Journal of Scientific Computing, Vol. 19, 2003, pp. 573-594.

16. Y.R. Tsai, L.T. Cheng, S. Osher, H. Zhao, *Fast Sweeping Algorithms for a Class of Hamilton-Jacobi Equations*, SIAM Journal on Numerical Analysis, Vol 41, No 2, pp. 673-694, 2003.

17. H. Zhao, *Analysis of the Response Matrix for an Extended Target*, SIAM Applied Mathematics, Vol. 64 No. 3, pp. 725-745. 2004.

18. Z. Li, X. Lin, M. Torres, H. Zhao, *Generalized Snell's Law for Weighted Minimal Surface in Heterogeneous Media*, Methods and Applications of Analysis, Vol. 10 (2), 2003.

19. S. Hou, K. Solna, H. Zhao, *Imaging of Location and Geometry for Extended Targets Using the Response Matrix*, J. Comp. Phys. Vol. 199 (1), pp. 317-338, 2004.

20. H. Zhao, *Fast Sweeping Method for Eikonal Equations*, Mathematics of Computation, Vol. 74, pp 603-627, 2005.

21. Y. Zhang, H. Zhao, J. Qian, *High order fast sweeping methods for static Hamilton-Jacobi equations*, Journal of Scientific Computing, Vol. 29(1), pp. 25-56, 2006.

22. K. Huang, K. Solna, H. Zhao, *Coupled Parabolic Equations for Wave Propagation*, Methods and Applications of Analysis, Vol. 11 (3), pp 399-412, 2004.

23. M. Peternell, H. Pottmann, T. Steiner, H. Zhao, *Swept Volumes*, Computer-Aided Design and Applications, Vol. 2, No. 5, 2005.

24. Y. Xi, G. Heckenberg, Y. Duan and H. Zhao, *A New Modeling-Based Algorithm for Implicit Surface Polygonization*, Proceedings of Vision Geometry XIII, SPIE 2005, January 2005, San Jose, CA.

25. K. Huang, G. Papanicolaou, K. Solna, C. Tsogka, H. Zhao, *Efficient Numerical Simulation for Long Range Wave Propagation*, J. Comp. Phys. Vol. 215(2), pp. 448-464, 2006.

26. J. Qian, Y. Zhang, H. Zhao, *Fast sweeping methods for Eikonal equations on triangulated meshes*, SIAM Journal on Numerical Analysis, Vol. 45, pp. 83-107, 2007.

27. J. Xu, Z. Li, J. Lowengrub, H. Zhao, *A Level Set Method for Interfacial Flows with Surfactant*, J. Comp. Phys. Vol. 212(2), pp. 590-616, 2006.

28. D. Lu, H. Zhao, M. Jiang, S. Zhou, and T. Zhou, *A Surface Reconstruction Method for Highly Noisy Point Clouds*, N. Paragios et al. (Eds.): VLSM 2005. Lecture Notes in Computer Science, Springer, 3752, pp. 283-294, 2005.

29. Y. Zhang, H. Zhao, S. Chen, *Fixed-point Iterative Sweeping Methods for Steady-states of Hamilton-Jacobi Equations*, Methods and Applications of Analysis Vol. 13, pp. 299-320, 2006.

30. S. Hou, K. Solna, H. Zhao, *A Direct Imaging Algorithm For Extended Targets*, Inverse Problem, Vol. 22, 1151-1178, 2006. (highlights of the year)

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