

Gang Bao

DATE OF BIRTH: June 18, 1964, China

EDUCATION:

Ph. D.	1991	Applied Math., Rice University
M.A.	1990	Math. Sciences, Rice University
B.S.	1985	Comput. Math, Jilin University, China

PROFESSIONAL EXPERIENCE:

- Dean and National Chair Professor, School of Mathematical Sciences, Zhejiang University, China, May 2015-present
- Head and National Chair Professor, Department of Mathematics, Zhejiang University, China, January 2010-May 2015
- Founding Director, Michigan Center for Industrial and Applied Mathematics (MCIAM), Michigan State University, March 2006 – July 2014.
- Professor, Michigan State University, August 1999 – September 2014.
- Associate Professor, University of Florida, August 1997 – August 1999.
- Assistant Professor, University of Florida, August 1994 – August 1997.
- Research Associate, IMA, University of Minnesota, September 1992 – August 1994.
- Research Associate, Rice University, January 1991 – August 1992.

AWARDS AND HONORS:

- Meritorious Performance Award, University of Florida, 1998.
- Changjiang Professor (Cheung Kong Scholar), Ministry of Education and Li Ka Shing Foundation, China, 2001–2006.
- The Feng Kang Prize of Scientific Computing, 2003.
- Distinguished Overseas Young Researcher Award, National Natural Science Foundation of China, 2005.
- University Distinguished Faculty Award, Michigan State University, 2007.
- College of Natural Science Distinguished Faculty Award, Michigan State University, 2007.
- First Grade Prize of Natural Science of Zhejiang Province, 2016
- SIAM Fellow, 2016

EDITORIAL BOARDS:

- SIAM J. on Numer. Anal. (2017-2020)
- SIAM J. on Applied Math. (2011-2019)
- Inverse Problems (2014--)
- Journal of Differential Equations (2014-)
- Inverse Problems and Imaging (2015-)

- Discrete and Continuous Dynamical Systems- Series B (2016-2019)
- J. on Inverse and Ill-posed Problems (2017-)
- Communications in Computational Physics (2005-)
- Journal of Computational Mathematics (2006-): Co-Managing Editor
- Evolution Equations and Control Theory (EECT) (2011-)
- International Journal on Numerical Analysis and Modeling (2004-)
- Frontiers of Mathematics in China (2004-)
- Journal of Applied Mathematics and Statistics (2012-)
- Journal of Chinese Universities on Applied Math (2012-)
- Journal of Mathematical Research with Applications(2011-)
- Multiscale Modeling and Simulation: a SIAM Interdisciplinary Journal (2001-2005)
- Journal on Information and Computational Science (2004-2010)
- Annals of Applied Mathematics (2015-)
- Mathematical Monograph Series, Science Publ. (2015-)

CURRENT RESEARCH GRANTS:

1. Principal Investigator, *Large scale inverse scattering problems in complicated media*, National Natural Science Foundation of China, a Key Project of the Major Research Plan of NSFC (No. 91130004), 2012-2016. Award amount: 3.9 million Chinese Yuans.
2. Principal Investigator, *International collaborative research project on inverse problems*, National Natural Science Foundation of China (No. 11421110002), 2014-2019. Award amount: 4 million Chinese Yuans.
3. Principal Investigator, *Inverse problems: theory, computation, and applications*, Tianyuan Project, National Natural Science Foundation of China (No. 11426235, 11526211), 2015-2017. Award amount: 2 million Chinese Yuans.
4. Principal Investigator, *Inverse problems for PDEs: theory, computation, and applications*, Innovative Research Group Fund, National Natural Science Foundation of China (No. 11621101), 2017-2022. Award amount: 8.4 million Chinese Yuans.
5. Principal Investigator, *Inverse problems in wave propagation: mathematical analysis, computational methods, and applications*, National Natural Science Foundation of China (No. 91630309), 2017-2019. Award amount: 3.0 million Chinese Yuans.

PREVIOUS RESEARCH GRANTS:

1. Principal Investigator, *New faculty research support program award (DSR-D)*, University of Florida, June 3, 1994 – June 2, 1995. Award amount: \$7,000.
2. Principal Investigator, *Inverse problems in diffractive optics and wave propagation*, National Science Foundation, DMS9501099, May 1, 1995 – April 30, 1998. Award amount: \$67,800.
3. Principal Investigator, *Mathematical studies of surface enhanced nonlinear optical effects*, Research Development Award (RDA), University of Florida, May

- 1, 1995 – April 30, 1997. Award amount: \$15,900.
4. Co-Principal Investigator, *Conference on optimal control: theory, algorithms, and applications*, National Science Foundation (PI: W. W. Hager), Feb. 1997. Award amount: \$7,500.
 5. Principal Investigator, *Modeling and design of micro-optical structures*, CLAS Research Initiation Projects Programs, University of Florida, 1997. Award amount: \$7,000.
 6. Principal Investigator, *Modeling and optimization of diffractive optical structures*, National Science Foundation, University-Industry Cooperative Research Programs in the Mathematical Sciences, DMS9705139, May 1, 1997 – April 30, 1999. Award amount: \$44,361 from NSF, \$40,248 from Cray Research, Inc., Honeywell, Inc., and University of Florida.
 7. Principal Investigator, *Modeling and optimization of diffractive optical structures*, Special Board Allocation, Office of Research, Technology, and Graduate Education, University of Florida, May 1, 1998 – April 30, 2000. Award amount: \$22,000.
 8. Participant, *Optimal design in near-field optics*, Beckman Foundation Young Investigator Award (PI: W. Tan), May 1, 1997 – April 30, 1999. Award amount: \$11,800.
 9. Principal Investigator, *Modeling and design of diffractive optics*, National Science Foundation, University-Industry Cooperative Research Programs in the Mathematical Sciences, DMS98-03809, May 1, 1998 – April 30, 2000. Award amount: \$47,034 from NSF, \$44,560 from University of Florida, Cray Research, Inc., and Lucent Technologies, Inc.
 10. Principal Investigator, *Diffractive optics computation*, A special unrestricted research grant, Honeywell Research Center, Jan. 1, 1999 – Dec. 31, 1999. Award amount: \$10,000.
 11. Principal Investigator, *Modeling and optimal design in micro-optics*, National Science Foundation, US-France Cooperative Research Program, INT-9815798. May 1, 1999 – April 30, 2002. Award amount: \$17,100.
 12. Principal Investigator, *A computational model for the determination of location of epileptic foci in the living human brain*, CLAS Research Initiation Projects Programs, University of Florida, 1999. Award amount: \$4,200.
 13. Principal Investigator, *Mathematical modeling of micro-optics and electromagnetics*, National Science Foundation, University-Industry Cooperative Research Programs in the Mathematical Sciences, DMS99-72292, May 1, 1999 – April 30, 2001. Award amount: \$46,208 from NSF, \$47,829 from Honeywell, Inc., Geo Control Systems, Inc., and University of Florida.
 14. Co-Principal Investigator, *The multigrid method and electromagnetic modeling*, 2001 Summer Program at the Morningside Center for Mathematics (Co-PIs: Z. Shi, J. Xu, Z. Chen), Academia Sinica, China. Award amount: \$28,000.
 15. Principal Investigator, *Inverse diffraction problems in optics*, National Science Foundation, DMS98-03604, May 1, 1998 – April 30, 2001. Award amount: \$79,200.

16. Principal Investigator, *A special research grant*, Michigan State University, Aug. 15, 1999 – Aug. 14, 2001. Award amount: \$120,000.
17. Principal Investigator, *Studies of direct and inverse problems in electromagnetics*, Office of Naval Research, Applied Analysis Programs, N000140010299, Feb. 1, 2000 – Dec. 31, 2001. Award amount: \$90,000.
18. Principal Investigator, *Inverse problems for 3-D subsurface imaging*, Intramural Research Grants Program, MSU (CO-PI: R. Bachrach), Dec. 15, 2000 – June 14, 2002. Award amount: \$75,000.
19. Principal Investigator, *Direct and inverse problems in diffractive optics modeling*, National Science Foundation, DMS0104001, July 1, 2001 – June 30, 2006. Award amount: \$320,000.
20. Co-Principal Investigator, *Exploitation of omnidirectional reflectivity*, (PI: T. Van. Co-PIs: L. Kempel, D. Nyquist) STTR, Air Force Office on Scientific Research (AFOSR), September 1, 2002 – September 30, 2003. Award amount: \$100,000.
21. Principal Investigator, *Computational electromagnetics*, a research gift, KLA-Tecor Foundation, 2004. Award amount: \$50,000.
22. Principal Investigator, *Mathematical and computational studies of nonlinear diffractive Optics*, Distinguished Overseas Young Researcher Award, National Science Foundation of China, 10428105, January 1, 2005 – December 31, 2007. Award amount: \$50,000.
23. Principal Investigator, *Collaborative Research: Foundations of solving large direct and inverse scattering problems-algorithm analysis and system support*, (Co-PI: L. Xiao), National Science Foundation, Theoretical Foundations Programs CCF-0514078, September 1, 2005 – August 31, 2008. Award amount: \$212,000.
24. Principal Investigator, *Mathematical and computational studies of inverse problems in electromagnetics*, Office of Naval Research, Applied Analysis Programs, N000140210365, March 1, 2002 – February 28, 2008. Award amount: \$434,791.
25. Principal Investigator, *To strengthen the educational program of the Michigan Center for Industrial and Applied Mathematics*, (Co-PIs: Ch. R. MacCluer and P. Wu), Alfred P. Sloan Foundation, August 1, 2006 – August 31, 2009. Award amount: \$45,000.
26. Co-Principal Investigator, *MCIAM workshop on multiscale modeling, analysis, and simulations*, March 2008, (PI: A. Christlieb), AFOSR. Award amount: \$7,000.
27. Co-Principal Investigator, *A High Performance Computing Center for Michigan State University*, (PI: L. Kempel. Co-PIs: P. Piecuch, S. D. Mahanti, F. Jaber) Michigan State University, 2005 – 2009. Award amount: \$2,925,000.
28. Director, *Michigan Center for Industrial and Applied Mathematics*, MSU Quality Fund, August 1, 2006 – July 31, 2009. Award amount: \$345,000.
29. Principal Investigator, *Direct and Inverse modeling of diffractive optics and near-field optics*, National Science Foundation, the US-China Collaboration in Mathematical Research (CMR) Programs DMS-0604790, (Co-PIs: L. Kempel

- and Z. Zhou) August 16, 2007 – August 15, 2009. Award amount: \$40,000.
30. Principal Investigator, Collaborative research: *Quantifying tectonic and geomorphic interpretations of thermochronometer data with inverse problem theory*, National Science Foundation, Collaboration in Mathematical Geosciences (CMG) Programs EAR-0724527, September 1, 2007 – August 31, 2012. Award amount: \$217,167.
 31. Principal Investigator, *Gaussian beam methods for large-scale computational electromagnetics and applications*, (Co-PI: J. Qian) National Science Foundation, Theoretical Foundations Programs CCF-0830161, September 1, 2008 – August 31, 2012. Award amount: \$250,000.
 32. Principal Investigator, *Inverse scattering problems in electromagnetics*, Office of Naval Research, Applied Analysis Programs N000140210365, October 1, 2009 – September 30, 2012. Award amount: \$240,000.
 33. Principal Investigator, Modeling, analysis, and computation of diffractive and nano optics, National Science Foundation, Applied Math Program DMS-0908325, June 1, 2009 – May 31, 2012 (No cost extension until May 31, 2013). Award amount: \$341,932.
 34. Principal Investigator, *Modeling, computation, and analysis of optical responses of nano structures*, (MSU Co-PIs: D. Liu, J. Schenker, Z. Zhou; Stanford Co-PI: S. Fan) National Science Foundation, Focused Research Group Programs DMS-0968360, June 1, 2010 – May 31, 2013 (No cost extension to Dec. 31, 2014). Award amount: \$1,260,000 (MSU: \$900,000; Stanford: \$360,000).
 35. Principal Investigator, *Inverse scattering problems in wave propagation*, Office of Naval Research, Applied Analysis Programs N000141210319, Feb. 15, 2012 – September 30, 2015. Award amount: \$239,933.
 36. Principal Investigator, Mathematics and computation of nonlinear problems in diffractive optics, National Science Foundation, Applied Math Program DMS-121129, September 1, 2012– August 31, 2015. Award amount: \$260,000.

PH.D. STUDENTS:

Tri Van (University of Florida, completed in July 1999); John Fleming (completed in December 2001); Kai Huang (completed in April 2002); Peijun Li (completed in May 2005); Weiwei Zhang (completed in June 2006); Ying Li (completed in July 2007); Yuanchang Sun (completed in June 2009); Li Zhao (Chinese Academy of Sciences, completed in June 2010); Junshan Lin (completed in May 2011); Yuliang Wang (completed in May 2013); Jun Lai (completed in May 2013); Hai Zhang (completed in May 2013); Justin Droba (completed in July 2014); Yuqi Hong (completed in August 2014); Huayan Liu (2012-); Bin Hu (2013-); Yuantong Liu(2014-).

POSTDOC RESEARCH ASSOCIATES:

Karim Ramdani (1999-2000); Hsiu-Chuan Wei (2000-2001); Hyeona Lim (2001-2003); Triki Faouzi (2003-2005); Haijun Wu (2003-2004); Songming Hou (2005-2007); Yanbo Wang (2007-2008); Kihyun Yun (2007-2010); Zhengfu Xu (2008-2010); Jianhua Yuan (2008-2009); Sonting Luo (2009-2012); Guanghui Hu (2009-2012); Russell Richins (2010-2012); Xiang Xu (2010-2013); Junliang Lv (2011-2013); Yixian Gao (2011-2013); Ming Li (2013-2016); Lei Zhang (2015-); Tao Ying (2016-).

PROFESSIONAL SERVICE:

- Vice President, Chinese SIAM, 2016-2020.
- Conference Chair, Applied Inverse Problems Conference (AIP 2017), Hangzhou, China, 2017
- Organizing Committee, IMA 2016-2017 Annual Program on Mathematics of Optics, 2017
- Panel Member, Kuwait Prize, KFAS, December 2013
- Member of the Scientific Committee, State Key Laboratory of Scientific and Engineering Computing (LSEC), Chinese Academy of Sciences, 2016-2019.

OTHER PROFESSIONAL ACTIVITIES:

- Review Advisory Board, One-Thousand Talent Program, Beijing, November 2016
- Review Panelist, Young Changjiang Scholar Program, Beijing, October 2016
- Review Panelist, Young Changjiang Scholar Program, Beijing, December 2015
- Panelist, Advisory Board for the One-Thousand Talent Program, Beijing, December 2015
- Riview Panelist, One-Thousand Talent Program of Zhejiang Province, Hangzhou, October 2015
- Co-Chair (with G. Uhlmann), IAS Workshop on Inverse Problems, Imaging and PDEs, Institute for Advanced Study, Hong Kong University of Science and Technology, September 2015
- Lead Panelist, Foreign One-Thousand Talent Program, Beijing, September 2015
- Lead Panelist, One-Thousand Talent Program, Beijing, September 2015
- Organizer, four Minisymposia, ICIAM 2015, Beijing, China, August 2015
- Co-Chair of the Satellite Conference of ICIAM on Inverse Problems and Imaging, August 2015
- Review Panelist, National Natural Science Foundation of China, Xiangtan, July 2015
- Scientific Committee, Applied Inverse Problems Conference (AIP 2015), 2015
- Review Panelist, Tianyuan Project, National Natural Science Foundation of China, Hangzhou, May 2015
- Lead Panelist, Young One-Thousand Talent Program, Beijing, January 2015
- Lead Panelist, Advisory Board for the One-Thousand Talent Program, Beijing,

December 2014

- Lead Panelist, Foreign One-Thousand Talent Program, Beijing, November 2014
- Chair of Conference on Inverse Problems: Theory and Applications, Harbin, August 2014
- Review Panelist, National Natural Science Foundation of China, Beijing, July 2014
- Chair of the Organizing Committee, International Conference on Inverse Problems and Imaging, Hangzhou, June 2014
- Review Panelist, National Natural Science Foundation of China, Beijing, July 2013.
- Chair of the Prize Committee, Conference on Inverse Problems: Theory and Applications, Taiyuan, China, July 2013.
- Scientific Committee. Applied Inverse Problems Conference (AIP 2013), July 2013.
- Chair of the Organizing Committee, International Conference on Inverse Problems and Applications, Hanzhou, China, September 2012.
- Review Panelist, National Natural Science Foundation of China, Twice in July 2012.
- Co-Chair, MCIAM workshop on Multiscale Modeling, Analysis, and Computation of Nano-Optics, East Lansing, MI, April 2012.
- Scientific Committee. The Eighth International Conference on Scientific Computing and Applications, Las Vegas, April 2012.
- Minisymposium Co-Organizer (with Z. Chen) Numerical Methods for Electromagnetic and Acoustic Wave Problems, ICIAM, Vancouver, July 2011.
- Chair of the Organizing Committee, International Conference on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, June 2011.
- Co-Chair, MCIAM Workshop on Computational Wave Propagation, East Lansing, MI, April 2011.
- Review Panelist, National Science Foundation, DMS, April 2011.
- Co-Chair, MCIAM Workshop on Nano Optics, East Lansing, MI, March 2011.
- Review Panelist, National Science Foundation, DMS, March 2011
- Review Panelist, National Natural Science Foundation of China, December 2010
- Review Panelist, National Science Foundation, DMS, March 2010
- Minisymposium Organizer, International Conference on Scientific Computation and Differential Equations, Beijing, China, May 2009.
- Review Panelist, National Science Foundation, DMS, April 2009.
- Review Panelist, National Science Foundation, DMS, March 2009.
- Organizing Committee, The First International Conference on Frontiers in Computational Mathematics, Guilin, China, December 2008.
- Review Panelist, (twice: Nov. 6-7; Nov. 23-25) National Science Foundation, DMS, November 2008.
- Invited Participant, IMA Workshop on Solar Initiatives, November 2008.
- Panelist, Math Review, Ann Arbor, October 2008.

- Co-Chair, International Conference on Applied Mathematics, City University of Hong Kong, Hong Kong, June 2008.
- Organizer: International Workshop on PDE Eigenvalue Problems, Beijing, China, May, 2008.
- Review Panelist, National Science Foundation, DMS, March 2008.
- Visiting Professor, Chinese University of Hong Kong, November 2007.
- Review Panelist, National Science Foundation, CCF, May 2007.
- Review Panelist, National Science Foundation, DMS, March 2007.
- Co-Chair of the organizing committee (with Jin Cheng), Workshop on Challenges and Opportunities in Nano-Optics, Shanghai, China, Jan. 5-9, 2007
- Invited participant, IMA Workshop on Negative Index Materials, IMA, Minneapolis, Oct. 2-4, 2006.
- Organizing committee, Applied Mathematics Summer Workshop, Applied Mathematics Research Center, Delaware State University, Dover, DE, July 31 – Aug 2, 2006
- Co-Chair of the organizing committee (with Zhiming Chen), Recent Mathematical and Computational Developments of Maxwell's Equations: Challenges and Frontiers, Weihai, China, July 24-28, 2006.
- Co-Organizer (with Yong Li), International Workshop on Differential Equations and Numerical Analysis, Jilin University, Changchun, China, July 10-12, 2006
- International scientific committee, International Conference on Inverse Problems, Sapporo, Japan, July 3-7, 2006.
- Invited participant, IMA Workshop on Imaging from Wave Propagation, IMA, Minneapolis, Oct 17-21, 2005.
- International scientific committee, 7th International Conference on Mathematical and Numerical Aspects of Wave Propagation (WAVES'05), Brown Univ., Providence, RI, June 20-24, 2005.
- Organizer, SIAM Great Lakes Section 2005 Spring Meeting, East Lansing, MI, April 16, 2005.
- Conference co-chair, International Conference on Numerical and Applied PDEs, Jilin University, Changchun, China, June 2004.
- Review Panelist, National Science Foundation, DMS, May 2004.
- Organizer, Minisymposium "Mathematical and computational modeling of electromagnetics and optics", ICIAM 2003, Sydney, July 2003.
- Organizer, Minisymposium "Modeling and design in optics and electromagnetics", IPAM, SIAM, and EMS Conference on Applied Inverse Problems, Arrowhead Lake, CA, May 2003.
- Scientific committee and minisymposium organizer, Minisymposium "Modeling, analysis, and computation of electromagnetics", 3rd International Workshop on Scientific Computing and Applications, Hong Kong, January 2003.
- Visiting Professor, City University of Hong Kong, May – November 2002.
- Visiting Professor, National University of Singapore, Singapore, December 2001.
- Member, Mathematical Sciences Research Institute (MSRI), Berkeley, CA, October & November 2001.

- Scientific committee and session chair, International Conference on Computational Mathematics, Pohang, Korea, July 2001.
- Organizing committee, International Conference on Scientific & Engineering Computing, Beijing, China, March 2001.
- Invited participant, the IMA Workshop on Brain Imaging, Minneapolis, MN, October 2000.
- Organizing committee, Beijing Workshop on Electromagnetic and Wave Propagation, Beijing, China, August 2000.
- Scientific committee, 5th International Conference on Mathematical and Numerical Aspects of Wave Propagation, Santiagode Compostela, Spain, July 2000.
- Visiting Professor, Ecole Polytechnique, France, April & May 1998, June & July 2000.
- Visiting professor, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany, December 1999.
- Invited participant, the IMA Workshop on Analysis and Modeling of Optical Devices, Minneapolis, MN, Sept. 1999.
- External Ph.D. thesis committee, Chiraz Latiri-Grouz, Ecole Polytechnique, France, Sept. 1999.
- Organizer, Applied Mathematics Seminar, Michigan State University, August 1999 – July 2002.
- Organizer (with H. Ammari), Minisymposium “Mathematical Modeling of Electromagnetics”, ICIAM, Edinburgh, Scotland, July 1999.
- Organizer (with Y. Chen), Special Session “Partial Differential Equations and Applications”, the AMS Southeastern Sectional Meeting, Gainesville, Jan. 1999.
- Invited participant, NSF site visit, IMA, U.of Minnesota, Oct. 1998.
- Visiting Professor, Ecole Polytechnique, France, April & May 1998,
- Invited participant, the Air Force Workshop on Inverse Scattering, San Antonio, TX, Aug. 1997.
- Organizer (with L. Cowsar), Minisymposium “Modeling in Optical Science”, SIAM Annual Meeting, Stanford, CA, July 1997.
- Organizing committee and session chair, Conference on Optimal Control: Theory, Algorithms, Applications, Gainesville, FL, Feb. 1997.
- Organizer, Graduate Working Seminar in Applied Mathematics, University of Florida, 1997-99.
- Organizer, Minisymposium “Inverse Problems in Optical Science”, SIAM Annual Meeting, Kansas City, MO, July 1996.
- Organizer, Applied Mathematics Seminar, University of Florida, 1994-96.
- Invited participant, the IMA Workshop on Nonlinear Optical Materials, Minneapolis, MN, March 1996.
- Session chair, CBMS Conference on Nondestructive Evaluation and Inverse Problems, Lexington, KY, June 1995.
- Member, Institute for Mathematics and its Applications (IMA), MN, March 1995.
- Invited participant, the IMA Workshop on Computational Wave Propagation,

Minneapolis, MN, Sept. 1994.

INVITED PLENARY TALKS:

- Plenary speaker, The 3rd Forum on Numerics and Modeling for Partial Differential Equations, SIAM Great Lake Section, Dearborn, MI, April 2000
- Plenary talk, International Conference on Inverse Problems, Hong Kong, January 2002
- Plenary talk, International Conference on Mathematical Modelling of Wave Phenomena, Vaxjo University, Sweden, November 2002
- Plenary talk, Future Directions in Applied Mathematics, Institute Henri Poincare, Paris, France, June 2003
- Plenary talk, The 7th Conference on Computational Mathematics, Nanjing, China, October 2003
- Plenary talk, 2nd International Conference on Inverse Problems, Recent Theoretical Development and Numerical Approaches, Fudan University, Shanghai, China, June 2004.
- Plenary talk, International Symposium on Computing and Information, Zhuhai, China, August 2004
- Plenary talk, the Midwest Numerical Analysis Conference, Univ. of Iowa, May 2005
- Plenary talk, New Trends in Simulation and Control of PDEs, Berlin, September 2005
- Plenary speaker, International Conference of Analysis and Applications, University of Science and Technology of China, Hefei, June 2006
- Plenary talk, SIAM Great Lakes Section 2007 Spring Meeting, Oakland University, April 2007
- Plenary talk, International Conference on Applied Mathematics and Interdisciplinary Research, Lijiang, China, August 2007
- Plenary talk, The Third International Conference on Scientific Computing and Partial Differential Equations, Hong Kong Baptist University, Hong Kong, December 2008
- Plenary talk, Joint Midwest Numerical Analysis Day & SIAM Great Lakes Numerical PDEs Conference, Wayne State University, April 2009
- Plenary talk, The Sixth Shanghai Conference on Scientific and Engineering Computing, Shanghai University, Shanghai, China, November 2010
- Plenary talk, the 6th Applied Inverse Problems Conference, College Station, Texas, May 2011
- Plenary talk, Forum on Scientific and Engineering Computing, LSEC, Academy of Sciences, Beijing, China, June 2011
- Plenary talk, International Workshop on Recent Advances in Biomedical Imaging, Shanghai Jiao Tong Univ., Shanghai, China, August 2011
- Plenary talk. The Eighth International Conference on Scientific Computing and Applications, Las Vegas, April 2012
- Plenary talk, International Conference on Applied Mathematics 2012, Liu Bie Ju

- Centre for mathematical Sciences, City University of Hong Kong, May 2012
- Plenary talk, International Conference on Computational Science, Shanghai Normal University, Shanghai, China, July, 2012
 - Plenary talk, 8th International Conference on Computational Physics, Hong Kong, January 2013
 - Plenary talk, Inverse Problems- from Theory to Applications, a conference celebrating 30 years of Inverse Problems, Institute of Physics, Bristol, UK, August 2014
 - Plenary talk, Annual Meeting of the Chinese Math. Society, Xinxiang, September 2014
 - Plenary talk, International Conference on Inverse problems and Optimal Control, Chinese University of Hong Kong, Hong Kong, December 2014
 - Plenary talk, 10th East China PDE Conference, Shanghai, June 2015
 - Plenary talk, CSIAM Annual Meeting, Xiangtan, August 2016
 - Plenary talk, The 7th National Conference on Reservoir Acoustics and Logging Technology, Beijing, November 2016
 - Plenary talk, The 1st BRICS Mathematics Conference, Beijing, China, August 2017

INVITED COLLOQUIUM AND CONFERENCE TALKS:

- Mathematics Colloquium, University of Florida, February 1990.
- Partial Differential Equations Seminar, University of Houston, April 1991.
- Mathematics Colloquium, Iowa State University, January 1992
- 16th Annual Texas Partial Differential Equations Conference, College Station, March 1992
- Second International Conference on Mathematical and Numerical Aspects of Wave Propagation, Newark, June 1993.
- IMA Workshop on Modeling, Mesh Generation, and Adaptive Numerical Methods for Partial Differential Equations, Minneapolis, July 1993.
- Mathematics Colloquium, Univ. of North Carolina at Charlotte, October 1993
- 13th Southeastern Atlantic Regional Conference on Differential Equations, Wilmington, October 1993
- Partial Differential Equations Seminar, Iowa State University, October 1993
- Mathematics Colloquium, University of Florida, January 1994.
- Mathematics Colloquium, Wichita State University, February 1994
- Conference on the Mathematical Study of Nonlinear Materials, Univ. of Arkansas, April 1994
- Partial Differential Equations Seminar, Michigan State University, April 1994
- Topical Meeting: Diffractive Optics, Optical Society of America, Rochester, New York, June 1994
- Industrial and System Engineering Department Colloquium, University of Florida, December 1994
- CBMS Conference on Nondestructive Evaluation and Inverse Problems,

University of Kentucky, Lexington, June 1995

- Mathematics Institute Colloquium, Jilin University, Changchun, China, July 1995
- Special Mathematics Colloquium, Texas A & M University, December 1995
- Mathematics Colloquium, Michigan State University, March 1996
- Colloquium on Scientific Computing, Bell Labs, Murray Hill, N. J., March 1996
- International Conference on Dynamical Systems and Differential Equations, Spring-field, MO, May 1996
- Mathematics Colloquium, Universite Louis Pasteur, Strasbourg, France, June 1996
- 2nd International Conference on Inverse Problems in Engineering: Theory and Practice, Le Croisic, France, June 1996
- 6th International Conference on Hyperbolic Problems, Hong Kong, June 1996
- Conference on Computational Physics and Applied Mathematics, Beijing, June, 1996
- Mathematics Colloquium, Harbin Institute of Technology, Harbin, China, July 1996
- Minisymposium on Inverse Problems in Optical Sciences, SIAM Annual Meeting, Kansas City, Mo, July 1996
- CAAM Colloquium, Rice University, November 1996
- International Conference on PDE and Applications, Chongqing, China, May 1997
- Mathematics Colloquium, Jilin University, Changchun, China, June 1997
- Mathematics Colloquium, Chinese Academia Sinica, Beijing, China, June 1997
- Third Midwest-Southeastern Atlantic Joint Regional Conference on Differential Equations, Vanderbilt University, Nashville, TN, November 1997
- Applied Mathematics Seminar, Courant Institute of Mathematical Sciences, NYU, New York, December 1997
- Physics Colloquium, Army Weapon Labs and University of Alabama, Huntsville, February 1998
- Applied Mathematics Seminar, University of Michigan, Ann Arbor, February 1998
- Mathematics Colloquium, Michigan State University, February 1998
- Dynamical Systems Seminar, Georgia Institute of Technology, February 1998
- Mathematics Colloquium, Georgia Institute of Technology, February 1998
- Mathematics Colloquium, Texas A & M University, March 1998
- Center for Applied Mathematics Seminar, Ecole Polytechnique, France, April 1998
- Mathematics Colloquium, INRIA, Rocquencourt, France, April 1998
- Summer Topical Meetings of Optical Society of America, Kailua-Kona, Hawaii, June 1998
- AMS-IMS-SIAM Joint Summer Research Conference on Mathematical Methods in Inverse Problems for PDEs, South Hadley, MA, July 1998
- Air Force Institute of Technology Distinguished Lecturers Series, Dayton, OH, July 1998
- Mathematics Colloquium, Beijing University, Beijing, China, August 1998

- Mathematics Colloquium, Jilin University, Changchun, China, August 1998
- Mathematics Colloquium, University of Florida, November 1998
- Applied Mathematics Colloquium, California Institute of Technology, Pasadena, CA, January 1999
- Mathematics Colloquium, University of Delaware, February 1999
- Mathematics Colloquium, Michigan State University, February 1999
- International Conf. on Diff. Eqns and Comput. Simulations, Chengdu, China, June 1999
- Minisymposium on Mathematical Modeling of Electromagnetics, ICIAM, Edinburgh, Scotland, July 1999
- Minisymposium on Medical Applications of Inverse Problems, ICIAM, Edinburgh, Scotland, July 1999
- Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany, December 1999
- Conference on Optimal Control of Complex Dynamical Structures, Mathematisches Forschungsinstitut Oberwolfach, Lorenzenhof, Germany, June 2000
- Fifth International Conference on Mathematical and Numerical Aspects of Wave Propagation, Santiago de Compostela, Spain, July 2000
- IAPCM Workshop on Computational Electromagnetics and Applications, Beijing, China, July 2000
- IAPCM Workshop on Electromagnetic and Wave Propagation, Beijing, China, August 2000
- Mathematics Colloquium, University of Memphis, November 2000
- Mathematics Colloquium, Mississippi State University, November 2000
- International Conference on Scientific & Engineering Computing, Beijing, China, March 2001
- Applied Mathematics Seminar, U.S. Naval Academy, Annapolis, MD, May 2001
- International Conf. on Computational Mathematics, Pohang, Korea, July 2001
- International Conference on Differential Equations and Dynamical Systems with Applications, Lhasa, Tibet, China, July 2001
- Department of Computational Mathematics Colloquium, National University of Singapore, Singapore, July 2001
- Mathematics Colloquium, Univ. of Chongqing, Chongqing, China, July, 2001
- A Two-Week Series of Lectures on Math and Computation of Diffractive Optics, the Morningside Center for Mathematics, Academia Sinica, Beijing, China, August 2001
- Two Minisymposium talks at The Third International ISAAC Congress, Berlin, August 2001
- Mathematics Colloquium, Brigham Young Univ., Provo, UT, November 2001
- MSRI Workshop on Inverse Problems and Applications, Berkeley, CA, November 2001
- Department of Computational Science Seminar, National University of Singapore, Singapore, December. 2001

- 2nd International Congress of Chinese Mathematicians, Taipei, Taiwan, December 2001
- Appl. Math. Seminar, Wayne State University, March 2002
- Special Session on Inverse Problems, UAB International Conference on Differential Equations and Mathematical Physics, Birmingham, Alabama, March 2002
- Mathematics Colloquium, Lanzhou University, Lanzhou, China, May 2002.
- Mathematics Colloquium, Zhongshan University, Guangzhou, China, June 2002
- CTS Workshop on Multiscale Modeling and Simulation, Taiwan, June 2002
- IMS Workshop on PDEs and Their Numerical Methods, the Chinese University of Hong Kong, Hong Kong, July 2002
- Five One-hour Lectures, Jilin Univ. Summer School, Changchun, China, July 2002
- Special Applied Math Seminar, Hong Kong Baptist University, Hong Kong, September 2002
- Mathematics Colloquium, Hong Kong Baptist University, Hong Kong, October 2002
- Special Applied Math Seminar, Hong Kong Baptist University, Hong Kong, October 2002
- Mathematics Colloquium, City Univ. of Hong Kong, Hong Kong, October 2002
- Mathematics Colloquium, Hong Kong University of Science and Technology, Hong Kong, November 2002
- Special Applied Math Seminar, Hong Kong Baptist University, Hong Kong, November 2002
- Mathematics Colloquium, Jilin University, December 2002
- 2nd IIRC Workshop on Impedance Imaging, Seoul, Korea, December 2002
- 2nd International Symposium on Scientific Computing, Guangzhou, China, December 2002
- LSEC Seminar, Chinese Academy of Sciences, Beijing, China, January 2003
- Workshop on Applied and Computational PDEs, Beijing University, Beijing, China, January 2003
- 3rd International Workshop on Scientific Computing and Applications, City University of Hong Kong, January 2003
- OWTNM 2003, Prague, CZECH Republic, April 2003
- IPAM/SIAM/EMS Conference on Applied Inverse Problems, Arrowhead Lake, CA, May 2003
- Applied Math Seminar, Univ. of California, Irvine, CA, May 2003
- Mathematics Colloquium, IMAG, Grenoble, France, June 2003
- Two minisymposium talks at ICIAM 2003, Sydney, Australia, July 2003
- 2nd Workshop on Multiscale Computation, Beijing University, Beijing, China, August 2003
- 1st Symposium on Science and Engineering in Biomedicine, Amelia Island, FL, September 2003
- One hour lecture, Inverse Problem Workshop II, IPAM, UCLA, Los Angeles,

November 2003

- International Workshop on Scientific Computing, Chinese Academy of Sciences, Beijing, China, December 2003
- Mathematics Colloquium, Jilin University, Changchun, China, December 2003
- International Conference on Partial Differential Equations and Applications, Fuzhou, China, January 2004
- Colloquium, Institute for Computational Mathematics, Chinese Academy of Sciences, Beijing, China, January 2004
- Workshop on Computational Methods in Multiscale Analysis and Applications, University of Florida, Gainesville, FL, February 2004
- International Conference on Mathematics and Its Applications, Hong Kong City University, Hong Kong, May 2004
- International Workshop on Nonlinear Waves, The Chinese University of Hong Kong, June 2004
- Four Eighty-minute Lectures, Special Year on Elliptic and Parabolic PDEs, Jilin University, Changchun, China, July 2004
- Kansas Center for Advanced Scientific Computing Seminar, University of Kansas, Lawrence, November 2004
- Special Session on Inverse Problems, Joint Mathematical Meetings, Atlanta, January 2005
- DoD Applied Math Workshop, Delaware State University, August 2005
- International Workshop on Computational Science and Its Education, Beijing, China, August 2005
- Minisymposium talk, SIAM Conference on Mathematics for Industry, Detroit, October 2005
- Mathematics Colloquium, Ecole Polytechnique, Paris, November 2005
- Appl. Math. Seminar, US Naval Academy, Annapolis. MD, March 2006
- Appl. Math. Seminar, Univ. of Michigan, Ann Arbor, April 2006
- Mathematics Colloquium, Wayne State University, Detroit, April 2006
- Appl. Math. Seminar, UC at Irvine, Irvine, May 2006
- International Conference on Recent Advances in Scientific Computing, Beijing, June 2006.
- Workshop on Scientific Computing, Tsinghua Univ., Beijing, July 2006
- International Workshop on Scientific Computing, Chinese Academy of Sciences, Beijing, July 2006
- BIRS workshop on Inverse Problems and Applications, Banff., Canada, August 2006
- Mathematics Colloquium, Tulane University, October 2006
- Applied Math Seminar, Tulane University, October 2006
- The Second International Conference on Recent Advance in Applied Dynamical Systems, Zhejiang Normal University, Jinhua, Zhejiang, China, June 2007
- International Workshop on Computational Methods in Geosciences, Xian, China, July 2007
- Applied Math. Colloquium, Weierstrass Institute for Applied Analysis and

Stochastics, Berlin, Germany, July 2007

- Special Session on Control and Optimization of Nonlinear PDE Systems, 1st Joint International Meeting between AMS and PTM, Warsaw, Poland, July 2007
- Mathematics Colloquium, Harbin Institute of Technology, Harbin, China, August, 2007
- Mathematics Colloquium, Florida State Univ., Tallahassee, FL, September 2007
- Mathematics Colloquium, Georgia Institute of Technology, Atlanta, October 2007
- Applied Mathematics Colloquium, U. of Pennsylvania, Philadelphia, Oct. 2007
- Mathematics Colloquium, IUPUI, Indianapolis, October 2007
- Mathematics Colloquium, Chinese U. of Hong Kong, Hong Kong, Nov. 2007
- Mathematics Colloquium, City U. of Hong Kong, Hong Kong, November 2007
- Mathematics Colloquium, Harbin Institute of Technology, Harbin, China, December 2007
- ONR Workshop on Inverse Problems, Washington DC, January 2008
- SAMSI Workshop on Waves and Imaging, NC, January 2008
- Mathematics Colloquium, RPI, NY, February 2008
- Mathematics Colloquium, Georgia Tech, Atlanta, April 2008
- Applied Math Seminar, Courant Institute, NY, April 2008
- Workshop on Scientific Computing, Institute of Comput. Math., Chinese Academy of Sciences, Beijing, China, June 2008
- Workshop on High Performance Scientific Computing, Wuyishan, China, June 2008
- Imaging Microstructures: Mathematical and Computational Challenges, Institute Henri Poincare, Paris, June 2008
- A series of 6 three-hour lectures on Mathematical Methods in Optical Science, Chinese Academy of Sciences, Beijing, China, July, August, 2008
- The First US-China Workshop on Nano Science, Northwestern U., October 2008
- Mathematics Colloquium, UNLV, Las Vegas, March 2009
- Mathematics Colloquium, University of Utah, Salt Lake City, April.2009
- Applied Math Seminar, BYU, April 2009
- Special Session, International Conference on Engineering and Computational Mathematics, Hong Kong Polytech University, Hong Kong, May 2009
- International Conference on Nonlinear and Stochastic Dynamics, Shichuang University, Chengdu, June 2009
- Special Session on Inverse Problems, 1st PRIMA Congress, Sydney, Australia, July 2009
- Mathematics Colloquium, Zhejiang University, Hanzhou, China, July 2009
- Mathematics Colloquium, Harbin Institute of Technology, Harbin, China, July 2009
- International Conf. on Inverse Problems, Wuhan U., Wuhan, China, April 2010
- William Benter Prize Minisymposium, International Conference on Applied Mathematics, City University of Hong Kong, June 2010
- A Series of 8 Lectures, IMA Summer School on Computational Wave Propagation, Michigan State University, June 2010

- Special Session, 5th Pacific Rim Conference on Mathematics, Stanford University, June 2010.
- A Series of 10 Lectures, Fudan Summer School on Maxwell's Equations, Fudan, University, Shanghai, China, July 2010
- International Workshop on Maxwell's Equations, Fudan U., China, July 2010
- Changjiang Forum on Mathematics, Sichuan University, China, August 2010
- Workshop on Mathematical and Statistical Methods for Imaging, Inha University, Seoul, Korea, August 2010
- International Workshop on Computational Mathematics and Scientific Computing, Academy of Sciences, Beijing, China, September 2010
- 2nd International Workshop on Interdisciplinary Applied Mathematics, Zhejiang University, Hangzhou, China, December 2010
- Minisymposium on Interactions of Inverse Problems, Signal Processing, and Imaging, AMS Joint Mathematics Meetings, New Orleans, January 2011
- ONR Program Review Meeting, Arlington, VA, June 2011
- Minisymposium on Recent Advances in Inverse Problems for Partial Differential Equations, ICIAM, Vancouver, CA, July 2011
- Mathematics Colloquium, Sichuan University, China, October 2011
- Workshop on Imaging, wave propagation in complex media, and optima control under uncertainties, Ecole Normale Supérieure, Paris, December 2011
- Mathematics Colloquium, Guangxi Minzhu University, China, December 2011
- Minisymposium on Inverse Problems and Control Theory, AMS Joint Mathematics Joint Meetings, Boston, January 2012
- Mathematics Colloquium, Sichuan University, China, April 2012
- Workshop on Mathematical and Numerical Analysis of Electronic Structure Models, Chinese Academy of Sciences, Beijing, June 2012
- Conference on inverse problems in honor of G. Uhlmann, UC Irvine, June 2012
- Mathematics Colloquium, Xiamen University, December 2012
- Physics Colloquium, Department of Physics, Zhejiang University, March 2013
- Mathematics Colloquium, NJIT, April 2013
- IFIP TC 7.2 Workshop on Electromagnetics, Weierstrass Institute, Berlin, Germany, June 2013
- Minisymposium, 2013 Pacific Rim Conference in Mathematics, SJTU, Shanghai, July 2013
- Minisymposium, Applied Inverse Problems, South Korea, July 2013
- Mathematics Colloquium, Harbin University of Engineering, Harbin, China, August 2013
- China-Japan-Korea Workshop on Scientific Computing, Chengdu, China, September 2013
- Mathematics Colloquium, Wuhan University, Wuhan, China, December 2013
- Mathematics Colloquium, National University of Singapore, October 2014
- Mathematics Colloquium, Fudan University, October 2014
- Mathematics Colloquium, University of Macau, November 2014
- International Conf. on Applied Math., City U. of Hong Kong, December 2014

- International Workshop on Mathematics in the Life & Physical Sciences, Renmin University, May 2015
- Mathematics Colloquium, Beijing Institute of Applied Physics and Computational Mathematics, Beijing, July 2015
- Annual Conference of the Computational Mathematics Society of China, Guangzhou, September 2015
- Distinguished Lecture Series, The AMSS-PolyU Joint Research Institute, HK Polytechnic University, Hong Kong, September 2015
- Mathematics Colloquium, Sichuan University, Chengdu, October 2015
- Mathematics Colloquium, Peking University, Beijing, October 2015
- Mathematics Colloquium, Harbin Institute of Technology, Harbin, China, December 2015
- Mathematics Colloquium, LSU, USA, February 2016
- Mathematics Colloquium, Hangzhou Normal University, Hangzhou, April 2016
- Mathematics in Imaging Conference, OSA Imaging and Applied Optics Congress, Heidelberg, Germany, July 2016
- 4th Workshop on Thin Structures, Naples, Italy, September 2016
- LIASFMA Workshop on Control and Inverse Problems for Partial Differential Equations, Hangzhou, October 2016
- IMA Workshop on Inverse Problems in Optics, Minneapolis, February 2017

PUBLICATIONS:

1. G. Bao and W. W. Symes, *A trace theorem for solutions of linear partial differential equations*, Math. Meth. in the Appl. Sci. **14** (1991), 553-562.
2. G. Bao and W. W. Symes, *Trace regularity for a second order hyperbolic equation with nonsmooth coefficients*, J. Math. Anal. Appl. **174** (1993), 370-389.
3. G. Bao, *A uniqueness theorem for an inverse problem in periodic diffractive optics*, Inverse Problems **10** (1994), 335-340.
4. G. Bao and D. Dobson, *Second harmonic generation in nonlinear optical films*, J. Math. Phys. **35** (4) (1994), 1622-1633.
5. G. Bao and A. Friedman, *Inverse problems for scattering by periodic structures*, Arch. Rat. Mech. Anal. **132** (1995), 49-72.
6. G. Bao and W. W. Symes, *Time like trace regularity of the wave equation with a nonsmooth principal part*, SIAM J. Math. Anal., **26**(1)(1995), 129-146.
7. G. Bao, D. Dobson and J. A. Cox, *Mathematical studies in the rigorous grating theory*, J. Opt. Soc. Am. A, **12**(5)(1995), 1029-1042.
8. G. Bao, *Finite element approximation of time harmonic waves in periodic structures*, SIAM J. Numer. Anal., **32**(4)(1995), 1155-1169.
9. G. Bao and D. Dobson, *Diffractive optics in nonlinear media with periodic structure*, Euro. J. Appl. Math. **6** (1995), 573-590.
10. G. Bao and W. W. Symes, *On the sensitivity of solutions of hyperbolic equations to the coefficients*, Comm. In P.D. E. **21** (3&4) (1996), 395-422.
11. G. Bao and W. W. Symes, *Computation of pseudo-differential operators*, SIAM J.

- Sci. Comput., **17**(2)(1996), 416-429.
12. G. Bao, *Numerical analysis of diffraction by periodic structures: TM polarization*, Numerische Mathematik **75** (1996), 1-16.
 13. G. Bao and Z. Zhou, *Inverse diffraction by a doubly periodic structure*, C. R. Acad. Sci., Paris, t **324**, S érie I (1997), 627-632.
 14. G. Bao and Y. Chen, *A nonlinear grating problem in diffractive optics*, SIAM J. Math. Anal., **28**(2)(1997), 322-337.
 15. G. Bao, *Variational approximation of Maxwell's equations in biperiodic structures*, SIAM J. Appl. Math., **57**(2)(1997), 364-381.
 16. G. Bao, *Smoothness between coefficients and boundary values for the wave equation*, SIAM J. Math. Anal., **29**(2)(1998), 380-394.
 17. H. Ammari and G. Bao, *Analysis of the diffraction by periodic chiral structures*, C. R. Acad. Sci., Paris, t **326**, S érie I (1998), 1371-1376.
 18. G. Bao, *On the relation between the coefficients and solutions for a diffraction problem*, Inverse Problems **14** (1998), 787-798.
 19. H. Ammari and G. Bao, *Mathematical analysis of the determination of locations of epileptic foci in the living brain*, C. R. Acad. Sci., Paris, t. **327**, S érie I (1998), 601-606
 20. G. Bao and Z. Zhou, *An inverse problem for scattering by a doubly periodic structure*, Trans. Ameri. Math. Soc. **350** (1998), 4089-4103.
 21. G. Bao and D. Dobson, *Modeling and optimal design of diffractive optical structures*, Survey on Industrial Math. **8** (1998), 37-62.
 22. H. Ammari, G. Bao, and K. Hamdache, *The effect of thin coatings on second harmonic generation*, Electronic J. Diff. Eq., Vol. **1999** (1999), No. 36, 1-13.
 23. G. Bao, X. Fang, W. Tan, and T. Van, *Evanescent energy in square and circular fibers*, J. Math. Chem., v. 27, no. 4 (2000), 12-19.
 24. G. Bao and D. Dobson, *On the scattering by a biperiodic structure*, Proc. Amer. Math. Soc. **128** (2000), 2715-2723.
 25. G. Bao and H. Yang, *A least-squares finite element analysis of diffraction problems*, SIAM J. Numer. Anal., **37**(2) (2000), 665-682.
 26. H. Ammari and G. Bao, *Identification of cracks by boundary measurements at low frequencies*, Inverse Problems **16** (2000), 133-143.
 27. H. Ammari and G. Bao, *Scattering by a nonhomogeneous object embedded in a periodic structure*, C. R. Acad. Sci., Paris, t. **330**, S érie I (2000), 333-338.
 28. G. Bao and T. Van, *Modeling of the evanescent energy in optical fibers*, J. Comput. Phys., **161**(2)(2000), 700-717
 29. G. Bao, Y. Chen and F. Ma, *Regularity and stability for the scattering map of a linearized inverse medium problem*, J. Math. Anal. Appl., **247**, No. 1 (2000), 255-271.
 30. H. Ammari, G. Bao and A. Wood, *An integral equation method for the electromagnetic scattering from cavities*, Math. Meth. Appl. Sci., **23**(12) (2000), 1057-1072.
 31. G. Bao, Y. Cao and H. Yang, *Numerical solution of diffraction problems by a least-squares finite element method*, Math. Meth. Appl. Sci., **23** (12)(2000),

- 1073-1092.
32. G. Bao and E. Bonnetier, *Optimal design of periodic diffractive structures*, Appl. Math. Optim. **43** (2001), 103-116.
 33. H. Ammari and G. Bao, *Analysis of the scattering map of a linearized inverse medium problem for electromagnetic waves*, Inverse Problems **17**(2001), 219-234.
 34. G. Bao and G. Li, Optimal design in nonlinear optics, in “Encyclopedia of Optimization”, Ed. By P. M. Pardalos and C. A. Floudas, Kluwer, Dordrecht, Vol IV (2001) , 147-153.
 35. G. Bao, On modeling and design problems in micro diffractive optics, International Series of Numer. Math., 139 (2001), 19-30.
 36. H. Ammari and G. Bao, *Mathematical modeling of near-field optics*, J. Math. Anal. Appl. **265** (2002), 430-446.
 37. G. Bao, D. Dobson and K. Ramdani, *A constraint on the maximum reflectance of rapidly oscillating dielectric gratings*, SIAM J. Control. Optim. **40** (2002), 1858-1866.
 38. H. Ammari and G. Bao, *Maxwell's equations in a perturbed periodic structure*, Adv. Comput. Math. **16** (2002), 99-112.
 39. H. Ammari, G. Bao, and J. Fleming, *An inverse source problem for Maxwell's equations in magnetoencephalography*, SIAM J. Appl. Math. **62** (2002), 1369-1382.
 40. H. Ammari, G. Bao, and A. Wood, *Analysis of the electromagnetic scattering from a cavity*, Japan J. Indust. Appl. Math. **19** (2002), 301-310.
 41. G. Bao and K. Ramdani, *Resonant frequencies for diffraction gratings*, Appl. Math. Lett. **16** (2002), 755-760.
 42. H. Ammari, G. Bao, and K. Hamdache, *Analysis of thin coatings on nonlinear diffraction gratings*, Nonlinear Analysis: Series B Real World Appl. **3** (4) (2002), 485-502.
 43. H. Ammari, G. Bao and A. Wood, *A cavity problem for Maxwell's equations*, Meth. & Appl. Anal. **9** (2002), 249-260.
 44. G. Bao, K. Huang and G. Schmidt, *Optimal design of nonlinear diffraction gratings*, J. Comput. Phys. **184** (2003), 106-121.
 45. H. Ammari and G. Bao, *Maxwell's equations in periodic chiral structures*, Math. Nachr. **251** (2003), 3-18.
 46. G. Bao and J. Liu, *Numerical solution of inverse scattering problems with multi-experimental limited aperture data*, SIAM J. Sci. Comput., **25**(3)(2003), 1102-1117.
 47. G. Bao, G. W. Wei and S. Zhao, *Local spectral time-domain method for electromagnetic wave propagation*, Opt. Lett. **28** (7) 2003), 513-515.
 48. G. Bao, A. Minut and Z. Zhou, *An L^p estimate for Maxwell's equations in stratified media*, C. R. Acad. Sci., Paris, **337** (2003), 365-370.
 49. G. Bao and K. Huang, *Optimal design of guided mode grating resonance filters*, IEEE Photonic Tech. Lett., **16**(1)(2004), 141-143.
 50. G. Bao, G. W. Wei and S. Zhao, *Numerical solution of the Helmholtz equation*

- with high wave number, *Int. J. Numer. Meth. Engng.* **59** (2004), 389-408.
51. G. Bao, *Recent mathematical studies in the modeling of optics and electromagnetics*, *J. Comput. Math.*, **22** (2) (2004), 148-155.
 52. G. Bao and P. Li, *Inverse medium scattering for three-dimensional time harmonic Maxwell's equations*, *Inverse Problems*, **20** (2) (2004), L1 - L7.
 53. G. Bao and A. Zhou, *Analysis of finite dimensional approximations to a class of partial differential equations*, *Math. Meth. Appl. Sci.* **27** (2004), 2055-2066.
 54. G. Bao and W. Zhang, *An improved mode matching method for large cavities*, *IEEE Antennas and Wireless Propagation Letters*, **4** (2005), 393-396.
 55. G. Bao and P. Li, *Inverse medium scattering problems for electromagnetic waves*, *SIAM J. Appl. Math.*, **65**(6)(2005), 2049-2066.
 56. G. Bao and H. Wu, *Convergence analysis of the perfectly matched layer problems for time-harmonic Maxwell's equations*, *SIAM J. Numer. Anal.*, **43**(5)(2005), 2121-2143.
 57. G. Bao and W. Sun, *A fast algorithm for the electromagnetic scattering from a large cavity*, *SIAM J. Sci. Comput.*, **27**(2)(2005), 553-574.
 58. G. Bao, Z. Chen and H. Wu, *Adaptive finite element method for diffraction gratings*, *J. Opt. Soc. Amer. A*, **22**(6)(2005), 1106-1114.
 59. G. Bao and K. Huang, *Computational design of guided-mode grating resonances*, *J. Opt. Soc. Amer. A*, **22**(7)(2005), 1408-1413.
 60. G. Bao and P. Li, *Inverse medium scattering for the Helmholtz equation at fixed frequency*, *Inverse Problems* **21** (2005), 1621-1644.
 61. G. Bao, Y. Li and H. Wu, *Numerical solution of nonlinear diffraction problems*, *J. Comput. Appl. Math.* **190** (2006), 170-189.
 62. G. Bao, A. Minut and Z. Zhou, *L^p estimates for Maxwell's equations with source term*, *Comm. in P.D.E.* **32** (2007), 1449-1471.
 63. G. Bao and P. Li, *Inverse medium scattering problems in near-field optics*, *J. Comput. Math.*, **25**(3)(2007), 252-265.
 64. G. Bao and P. Li, *Numerical solution of inverse scattering for near-field optics*, *Optics Lett.*, **32**(11)(2007), 1465-1467.
 65. G. Bao, S. Hou and P. Li, *Inverse scattering by a continuation method with initial guesses from a direct imaging algorithm*, *J. Comput. Phys.*, **227** (2007), 755-762.
 66. H. Ammari and G. Bao, *Coupling of finite element and boundary element methods for the electromagnetic diffraction by a periodic chiral structure*, *J. Comput. Math.*, **26**(3)(2008), 261-283.
 67. Y. Sun, H. Ajiki and G. Bao, *Computational modeling of optical response from excitons in a nano optical medium*, *Comm. Comput. Phys.*, **4** (2008), 1051-1068.
 68. G. Bao, Y. Li and Z. Zhou, *L^p estimates of time-harmonic Maxwell's equations in a bounded domain*, *J. Diff. Equ.*, **245** (2008), 3674-3686.
 69. G. Bao and K. Yun, *On the stability of an inverse problem for the wave equation*, *Inverse Problems* **25** (2009), 045003, 7pp.
 70. G. Bao and P. Li, *Numerical solution of an inverse medium scattering problem for Maxwell's equations at fixed frequency*, *J. Comput. Phys.*, **228** (2009), 4638-4648.
 71. G. Bao and Y. Sun, *Optical polariton modes in a nanoscale semiconductor*, *Optics*

- Lett., **34**(21)(2009), 3436-3438.
72. G. Bao and Y. Sun, Modeling and computation of the scattering by a nano optical medium, *Contemp. Math.*, 494 (2009), 27-41.
 73. G. Bao, P. Li and H. Wu, *An adaptive edge element method with perfectly matched absorbing layers for wave scattering by periodic structures*, *Math. Comp.*, **79**(2010), 1-34.
 74. G. Bao, S-N Chow, P. Li and H-M Zhou, *Numerical solution of an inverse medium scattering problem with a stochastic source*, *Inverse Problems*, **26** (2010), 7-29.
 75. G. Bao and F. Triki, *Error estimates for the recursive linearization for solving inverse medium problems*, *J. Comput. Math.*, **28**(6) (2010), 725-744.
 76. Z. Xu and G. Bao, *A numerical scheme for nonlinear Helmholtz equation in nonlinear optics*, *J. Opt. Soc. Amer. A.* **27**(11) (2010), 2347-2353.
 77. G. Bao, J. Lin and F. Triki, *A multi-frequency inverse source problem*. *J. Diff. Eqn.* **249**(12) (2010), 3443-3465.
 78. G. Bao, L. Dou, T. Ehlers, P. Li, Y. Wang and Z. Xu, *Quantifying tectonic and geomorphic interpretations of thermochronometer data with inverse problem theory*, *Comm. Comput. Phys.*, **9**(1) (2011), 129-146.
 79. G. Bao and J. Lin, *Imaging of local surface displacement on an infinite ground plane: the multiple frequency case*, *SIAM J. Appl. Math.*, **71** (2011), 1733-1752.
 80. G. Bao, Z. Xu and J. Yuan, *Continuation finite element simulation of second harmonic generation in photonic crystals*, *Comm. Comput. Phys.*, **10** (2011), 57-69.
 81. G. Bao, J. Lin and F. Triki, *An inverse source problem with multiple frequency data*, *C. R. Math. Acad. Sci. Paris* **349** (2011), 855-859.
 82. G. Bao, J. Lin and F. Triki, *Numerical solution of the inverse source problem for the Helmholtz equation with multiple frequency data*, *Contemp. Math.*, AMS, 548 (2011), 45-60.
 83. G. Bao, J. Gao and P. Li, *Analysis of direct and inverse problems for electromagnetics scattering from cavities*, *Numer. Math. Theor. Meth. Appl.*, **4** (2011), 335-358.
 84. G. Bao, H. Zhang and J. Zou, *Unique determination of periodic polyhedral structures by scattered electromagnetic fields*, *Trans. Amer. Math. Soc.*, **363** (2011), 4527-4551.
 85. G. Bao, K. Yun and Z. Zhou, *Stability of the scattering from a large electromagnetic cavity in two dimensions*, *SIAM J. Math. Anal.*, **44**(1) (2012), 383-404.
 86. G. Bao, P. Li and H. Wu, *A computational inverse diffraction grating problem*, *J. Opt. Soc. Am. A.*, **29**(4)(2012), 394-399.
 87. G. Bao, J. Gao, J. Lin and W. Zhang, *Mode matching for the electromagnetic scattering from three dimensional large cavities*, *IEEE Trans. Antennas & Wave Propagation*, **60**(4)(2012), 1-7.
 88. G. Bao, G. Hu and D. Liu, *An h-adaptive FEM solver for the calculations of the electronic structures*, *J. Comput. Phys.*, **231** (2012), 4967-4979.

89. G. Bao and X. Xu, *An inverse diffusivity problem for the helium production-diffusion equation*, *Inverse Problems* **28** (2012) 085002, 15pp.
90. G. Bao and J. Lin, *Imaging of reflective surfaces by near-field optics*, *Optics Lett.*, **37**(24)(2012), 5027-5029.
91. G. Bao and X. Xu, *An inverse random source problem in quantifying the elastic modulus of nano-materials*, *Inverse Problems* **29** (1)(2013), 015006, 16pp.
92. G. Bao, J. Qian, L. Ying and H. Zhang, *A convergent multiscale Gaussian-beam parametrix for wave equations*, *Comm. in P.DE.*, **38**(2013), 92-134.
93. G. Bao, D. Liu and S. Luo, *A multiscale method for optical responses of nano structures*, *SIAM J. Appl. Math.*, **73**(2) (2013), 741–756.
94. G. Bao and P. Li, *Near field imaging of infinite rough surfaces*. *SIAM J. Appl. Math.*, **73**(6)(2013), 2162–2187.
95. G. Bao, P. Li and J. Lv, *Numerical solution of an inverse diffraction grating problem from phaseless data*, *J. Opt. Soc. Am. A.*, **30**(3)(2013), 293-299.
96. G. Bao and Y. Wang, *Optimal design of antireflection coatings with different metrics*, *J. Opt. Soc. Am. A* **30**(2013), 656-662.
97. G. Bao and J. Lin, *Near-field imaging of the surface displacement on an infinite ground plane*, *Inverse Problems and Imaging*, **7**(2)(2013), 377-396.
98. G. Bao, G. Hu and D. Liu, *Numerical solution of the Kohn-Sham equation by finite element methods with an adaptive mesh redistribution technique*, *J. Sci. Comput.*, **55**(2)(2013), 372-391.
99. G. Bao, T. Ehlers and P. Li, *Radiogenic source identification for the helium production-diffusion equation*, *Comm. Comput. Phys.*, **14** (1) (2013), 1-20.
100. G. Bao and F. Triki, *Reconstruction of a defect in an open waveguide*, *Sci. China Math.*, **56**(12)(2013), 2539–2548.
101. G. Bao, G. Hu, D. Liu and S. Luo, *Multiphysical modeling and multiscale computation of nano-optical responses*, *Contemp. Math.*, AMS, **86** (2013), 43-55.
102. G. Bao, S-N Chow, P. Li and H-M Zhou, *An inverse random source problem for the Helmholtz equation in one dimension*, *Math. Comp.*, **83**(285)(2014), 215-233.
103. G. Bao, J. Lin and S. Mefire, *Numerical reconstruction of electromagnetic inclusions in three dimensions*, *SIAM J. Imag. Sci.*, **7**(1)(2014), 558-577.
104. G. Bao and H. Liu, *Nearly cloaking the electromagnetic fields*, *SIAM J. Appl. Math.*, **74**(3) (2014), 724–742.
105. G. Bao and P. Li, *Near-field imaging of infinite rough surfaces in dielectric media*, *SIAM J. Imaging Sci.* **7**(2)(2014), 867–899.
106. G. Bao and J. Lai, *Optimal shape design of a cavity for radar cross section reduction*, *SIAM J. Control Optim.*, **52**(4)(2014), 2122-2140.
107. G. Bao, T. Cui and P. Li, *Inverse diffraction grating of Maxwell's equations in bi-periodic structures*, *Optics Express*, **22**(4)(2014), 4799-4816.
108. G. Bao, H. Zhang and J. Zou, *Unique determination of periodic polyhedral structures by scattered electromagnetic fields Part II, The resonance case*, *Trans. Amer. Math. Soc.* **366** (2014), 1333-1361.
109. G. Bao, J. Lai and J. Qian, *Fast multiscale Gaussian beam methods for wave equations in bounded domains*, *J. Comput. Phys.*, **261** (2014), 36-64.

- 110.G. Bao and J. Lai, *Radar cross section reduction of a cavity in the ground plane*, Comm. Comput. Phys., **15** (2014), 895-910.
- 111.G. Bao, H. Liu and J. Zou, *On near-cloak in electromagnetic scattering*, J. Math. Pures Appl. **101**(2014), 716-733.
- 112.G. Bao and P. Li, *Convergence analysis in near-field imaging*, Inverse Problems **30**(8) (2014), 085008, 26pp.
- 113.G. Bao and H. Zhang, *Sensitivity analysis of an inverse problem for the wave equations in the presence of caustics*, J. Amer. Math. Soc. **27**(4)(2014), 953-981.
- 114.G. Bao, K. Huang, P. Li and H. Zhao, *A direct imaging method for inverse scattering using the generalized Foldy-Lax formulation*, Contemp. Math., AMS, **615** (2014), 49-70.
- 115.G. Bao and J. Lai, *Radar cross section reduction of a cavity in the ground plane: TE polarization*, Discrete Conti. Dyn. Syst. Ser. S, **8**(3)(2015), 419-434.
- 116.G. Bao, G. Hu and D. Liu, *Real-time finite element solution of time-dependent Kohn-Sham equation*, J. Comput. Phys., **281**(2015), 743-758.
- 117.Z. Wang, G. Bao, J. Li, P. Li and H. Wu, *An adaptive finite element method for the diffraction grating problem with transparent boundary condition*, SIAM J. Numer. Anal. **53**(3)(2015), 1585-1607.
- 118.G. Bao, S. Lu, W. Rundell and B. Xu, *A recursive algorithm for multifrequency acoustic inverse source problems*, SIAM J. Numer. Anal., **53**(3)(2015), 1608-1628.
- 119.G. Bao, P. Li, J. Lin and F. Triki, *Inverse scattering problems with multi-frequencies*, Inverse Problems **31**(9)(2015), 093001, 21pp. (Invited Topical Review)
- 120.G. Bao and X. Xu, *Identification of the material properties in nonuniform nano structures*, Inverse Problems **31**(12)(2015), 125003, 11pp.
- 121.G. Bao and M. I. Weinstein, *Mathematical challenges and opportunities in optics and photonics*, SIAM News, **48**(4)(2015), 3pp.
- 122.G. Bao, H. Y. Liu, M. Li and X. Xu, *Inverse problems in quantifying mechanical properties in nanomaterials* (in Chinese). Sci Sin Math, **45**(2015), 831-842.
- 123.G. Bao, G. Hu and D. Liu, *Towards translational invariance of total energy with finite element methods for Kohn-Sham equation*, Comm. Comput. Phys. **19**(1)(2016), 1-23.
- 124.G. Bao and K. Yun, *Stability for the electromagnetic scattering from large cavities*, Arch. Ration. Mech. Anal. **220**(3)(2016), 1003–1044.
- 125.G. Bao, D. Liu and S. Luo, *Multiscale modeling and computation of optically manipulated nano devices*, J. Comput. Phys. **316**(2016), 558-572.
- 126.G. Bao, P. Li and Y. Wang, *Near-field imaging with far-field data*, Appl. Math. Lett., **60** (2016), 36-42.
- 127.G. Bao and L. Zhang, *Shape reconstruction of the multi-scale rough surface from multi-frequency phaseless data*, Inverse Problems **32**(8)(2016), 085002, 16pp.
- 128.G. Bao, C. Chen, and P. Li, *Inverse random source scattering problems in several dimensions*, SIAM/ASA J. Uncertain. Quantif., **4**(1)(2016), 1263-1287.

- 129.M. You, Y. Lyu, D. Han, L. Qiu, Q. Liu, T. Chen, C. Wu, L. Peng, L. Zhang, G. Bao, and W. Tan, *DNA probes for monitoring dynamic and transient molecular encounters on live cell membranes*, Nature Nanotechnology, Vol. 12 (2017), 453-459.
- 130.G. Bao and H. Zhang, Stability for the lens rigidity problem, Arch. Ration. Mech. Anal. 225 (2017), 1127–1160.
- 131.G. Bao and T. Yin, *Recent progress on the study of direct and inverse elastic scattering problems* (in Chinese), Sci. China Math, to appear.
- 132.G. Bao, S. He, and Y. Ma, *Can researchers make a perfect optical lens?* Chinese Science Bulletin, To appear.
- 133.G. Bao, L. Xu and T. Yin, *An accurate boundary element method for the exterior elastic scattering problem in two dimensions*, J. Comput. Phys., to appear.
- 134.G. Bao, C. Chen, and P. Li, *Inverse random source scattering for elastic waves*, submitted.
- 135.G. Bao, G. Hu, J. Sun, and T. Yin, *Direct and inverse scattering from anisotropic media*, submitted.
- 136.G. Bao, P. Li, and Y. Zhao, *Stability in the inverse source scattering problem for elastic waves*, submitted.
- 137.G. Bao and L. Zhang, *Uniqueness for scattering and inverse scattering by infinite rough surfaces with tapered wave incidence*, preprint.
- 138.G. Bao and F. Triki, *Stability for inverse medium problems*, preprint.

REFEREED BOOK CHAPTERS, PROCEEDING PAPERS:

1. G. Bao and W. Wu, *Error estimates of the generalized difference methods for 2nd order hyperbolic equations*, Acta. Sci. Natur. Univ. Jilin **2** (1987), 33-42, MR: 88m: 65163.
2. G. Bao, *Time like trace regularity of the wave equation*, Second International Conference on Mathematical and Numerical Aspects of Wave Propagation, ed. By R. Kleinman, T. Angell, D. Colton, F. Santosa, and I. Stakgold, SIAM, Philadelphia, 20-29, 1993.
3. G. Bao and D. Dobson, *Nonlinear optics in periodic diffraction structures*, Second International Conference on Mathematical and Numerical Aspects of Wave Propagation, ed. by R. Kleinman, T. Angell, D. Colton, F. Santosa, and I. Stakgold, SIAM, Philadelphia, 30-38, 1993.
4. G. Bao, D. Dobson and J. A. Cox, *Mathematical issues in the electromagnetic theory of gratings*, in Diffraction Optics: Design, Fabrication and Applications, Technical Digest, Optical Society of American, Vol. 11 (1994), 8-11.
5. G. Bao, *An inverse diffraction problem in periodic structures*, Proceedings of Third International Conference on Mathematical and Numerical Aspects of Wave Propagation, Ed. By G. Cohen, SIAM, Philadelphia, 694-704, 1995.
6. G. Bao, *Inverse problems in partial differential equations*, “Numerical Methods in Applied Sciences”, ed. By W. Cai, Z. Shi, C-W. Shu, and J. Xu, Science Press, New York, 20-38, 1996.
7. G. Bao and W. W. Symes, *Regularity of an inverse problem in wave propagation*,

- in “Inverse Problems of Wave Propagation and Diffraction”, Springer Lecture Notes in Phys., ed. By G. Chavent and P. Sabatier, Springer-Verlag, 226-235, 1997.
8. G. Bao, *Mathematical modeling of nonlinear diffractive optics*, J. Dynamical Systems and Differential Equations, Special Issue, Vol. 1, 89-99, 1998.
 9. G. Bao, *Diffraction by a periodic surface*, in the Proceedings of Fourth International Conference on Mathematical and Numerical Aspects of Wave Propagation, Ed. By J. De Santo, SIAM, Philadelphia, 476-478, 1998.
 10. G. Bao, *Mathematical modeling of diffractive gratings*, in *Diffractive Optics: Design, Fabrication and Applications*, Technical Digest Series, Optical Society of American, Vol. 10 (1998), 4-6.
 11. G. Bao, *Inverse diffraction by a periodic perfect conductor with several measurements*, in *Inverse Problems in Engineering, Theory and Practice*, Ed. By D. Delaunay, Y. Jarny, and K. A. Woodbury, ASME, 297-303, 1998.
 12. G. Bao, *Direct and inverse diffraction by periodic structures*, in the Proceedings of International Conference on Nonlinear PDE and Applications, Ed. By B. Guo and D. Yang, World Scientific, 1-7, 1998.
 13. G. Bao, H. Ammari, T. Van and A. Wood, *Scattering from electromagnetic cavities*, in the Proceedings of Fifth International Conference on Mathematical and Numerical Aspects of Wave Propagation, ed. By A. Bermudez, D. Gomez, C. Hazard, P. Joly, and J. E. Roberts, SIAM, Philadelphia, 211-215, 2000.
 14. G. Bao and H. Ammari, *Modeling of near-field optics*, in the Proceedings of Fifth International Conference on Mathematical and Numerical Aspects of Wave Propagation, ed. By A. Bermudez, D. Gomez, C. Hazard, P. Joly, and J. E. Roberts, SIAM, Philadelphia, 445-449, 2000.
 15. G. Bao, *Modeling of micro diffractive optics*, in the Proceedings of the International Conf. on Diff. Eqns. Comput. & Simulations, ed. By P. Bates, K. Lu and D. Xu, World Scientific Publishing, 1-8, 2000.
 16. G. Bao and D. Dobson, *Variational methods for diffractive optics modeling*, in “Mathematical Modeling in Optical Science”, ed. By G. Bao, L. Cowsar, and W. Masters, SIAM Frontiers in Appl. Math., SIAM, Philadelphia, 37-70, 2001.
 17. G. Bao, L. Cowsar and W. Masters, *Preface to the Mathematical Modeling in Optical Science*, in “Mathematical Modeling in Optical Science”, SIAM Frontiers in Appl. Math., SIAM, Philadelphia, 2001.
 18. G. Bao, *Preface to the Special Issue on Modeling and Computation of Optics and Electromagnetics*, Adv. Comput. Math. 16 (2002), 97-98.
 19. G. Bao, *Book Review*, SIAM Review, Vol 44, No. 4 (2002), 708.
 20. G. Bao, *Inverse and optimal design problems in diffractive optics*, in “Recent Developments in Theories & Numerics”, Proceedings of the International Conf. on Inverse Problems, ed. By Y. Hon, M. Yamamoto, J. Cheng, and J. Lee, World Sci., Hong Kong, 37-46, 2003.
 21. G. Bao, A. Minut and Z. Zhou, *Maxwell's equations in nonlinear biperiodic structures*, Proceedings of Sixth International Conference on Mathematical and Computational Aspects of Wave Propagation, ed. By G. Cohen, E. Heikkola, P.

- Joly, and P. Neittaanmaki, Springer, Berlin, 406-411, 2003.
22. G. Bao and K. Huang, *Optimal design of waveguide-grating resonances*, Proceedings of Sixth International Conference on Mathematical and Computational Aspects of Wave Propagation, ed. By G. Cohen, E. Heikkola, P. Joly, and P. Neittaanmaki, Springer, Berlin, 830-835, 2003.
 23. G. Bao and Z. Zhou, *On nonlinear Maxwell's equations from second harmonic generation*, Proceedings of the 3rd International ISAAC Congress, ed. By H. Begehr, R. Gilbert, and M. Wong, 1097-1106, 2003.
 24. G. Bao, J. Liu and H.-C. Wei, *Recursive linearization of an inverse medium problem*, Proceedings of the 3rd International ISAAC Congress, ed. By H. Begehr, R. Gilbert, and M. Wong, 1423-1436, 2003.
 25. G. Bao, *Recent mathematical studies of diffractive optics*, Math. Modelling in Physics, Engineering and Cognitive Sciences. Vol. 7,. Proceedings of the Conference on Mathematical Modelling of Wave Phenomena, Ed. By B. Nilsson and L. Fishman, Vaxjo Univ. Press, 23-28, 2004.
 26. G. Bao and J. Liu, *Accurate computation of the electromagnetic scattering from a cavity*, Proceedings of 3rd International Workshop on Scientific Computing and Applications, ed. by Y. Lu, W. Sun, and T. Tang, Sci. Press, Beijing, 45-54, 2004.
 27. G. Bao, G. W. Wei and S. Zhao, *A new algorithm for solving the Helmholtz equation with high wave numbers*, Proceedings of 3rd International Workshop on Scientific Computing and Applications, ed. by Y. Lu, W. Sun, and T. Tang, Sci. Press, Beijing, 55-67, 2004.
 28. G. Bao, *The mathematics of diffractive optics*, Proceedings of ICCM 2001, ed. by C. Lin, L. Yang, and S. T. Yau, International Press, MA, 555-567, 2004.
 29. G. Bao and P. Li, *Computational inverse medium problems at fixed frequency*, in "Advances in Applied and Computational Mathematics", ed. by F. Liu, Z. Nashed, G. N'Guerekata, D. Pokrajac and Z. Qiao, Nova Science, Publishers,(2006), 1-9.
 30. G. Bao, S. Hou and P. Li, *Recent studies on inverse medium scattering problems*, Lecture Notes in Computational Science and Engineering 59 (2007), ed. by H. Ammari, 165-186.
 31. G. Bao and P. Li, *Shape reconstruction of inverse medium scattering for the Helmholtz equation*, Computational Methods for Applied Inverse Problems, ed. by Y. Wang, A. Yagola, and C. Yang, De Gruyter and Higher Education Press, Beijing , 2012, 283-306.

BOOKS/SPECIAL ISSUES EDITED:

1. G. Bao, L. Cowsar and W. Masters (ed.) *Mathematical Modeling in Optical Science, the SIAM Frontiers in Applied Mathematics*, SIAM, Philadelphia, 333 pages, 2001.
2. G. Bao (ed.), Modeling and Computation of Optics and Electromagnetics, Special Issue, Advances in Computational Mathematics **16**, 2002.
3. G. Bao (ed.), Mathematics and Computation of Optics and Electromagnetics, Special Issue, Comm. Comput. Phys., Vol. 1, No. 6, 2006.
4. G. Bao, Z. Chen, Z. Shi, and B. Zhang (ed.), *Recent Mathematical and*

Computational Developments of Maxwell's Equations, Special Issue, J. Comput. Math., 25, No. 3, 2007.