

# CURRICULUM VITAE

## PERSONAL

Hongyu Liu  
Department of Mathematics  
Hong Kong Baptist University  
Kowloon, Hong Kong SAR  
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## EDUCATION

- Ph.D. in Mathematics 2007  
The Chinese University of Hong Kong, Hong Kong SAR
- B.S. in Mathematics 2001  
Harbin University of Science and Technology, China

## ACADEMIC POSITIONS

- Associate Professor, 2014–present; Associate Head, 2017–present  
Department of Mathematics, Hong Kong Baptist University, Hong Kong SAR
- Assistant Professor, 2011–2014  
Department of Mathematics, University of North Carolina, Charlotte, USA
- Lecturer, 2011  
Department of Mathematics, University of Reading, UK
- Acting Assistant Professor, 2007–2010  
Department of Mathematics, University of Washington, Seattle, USA

## RESEARCH INTERESTS

Inverse Problems and Imaging; Partial Differential Equations; Mathematical Materials Science; Scattering Theory; Spectral theory; Geometric Integration for Dynamical Systems; Numerical Analysis and Scientific Computing

## BOOK/MONOGRAPH

- L. Borcea, H. Kang, H. Liu and G. Uhlmann (edited by H. Ammari and J. Garnier), *Inverse Problems and Imaging*, Panoramas et Synthèses, Numéro 44, Société Mathématique de France, 2015

## BOOK CHAPTER

- J. Li, H. Liu and J. Zou, *An efficient multilevel algorithm for inverse scattering problem*, Advances in Computation and Intelligence, Lecture Notes in Computer Science, Springer-Berlin, 2007.

## PREPRINTS AND JOURNAL PUBLICATIONS

### Submitted

- [1] J. Li, H. Liu and H. Sun, *On a gesture-computing technique using electromagnetic waves*, arXiv:1708.02848
- [2] J. Li, X. Li and H. Liu, *Reconstruction via the intrinsic geometric structures of transmission eigenfunctions*, arXiv:1706.04418
- [3] E. Blåsten and H. Liu, *Recovering piecewise-constant refractive indices by a single far-field pattern*, arXiv:1705.00815
- [4] Y. Guo, J. Li, H. Liu and X. Wang, *Two gesture-computing approaches by using electromagnetic waves*, arXiv:1705.07713
- [5] H. Li, J. Li and H. Liu, *On novel elastic structures inducing plasmonic resonances with finite frequencies and cloaking due to anomalous localized resonance*, arXiv:1704.07981
- [6] Y. Deng, H. Li and H. Liu, *On spectral properties of Neuman-Poincaré operator and plasmonic cloaking in 3D elastostatics*, arXiv:1702.06460
- [7] Y. Deng, H. Liu and G. Uhlmann, *On an inverse boundary problem arising in brain imaging*, arXiv:1702.00154
- [8] D. Zhang, Y. Guo, J. Li and H. Liu, *Locating multiple multipolar acoustic sources using the direct sampling method*, preprint, 2017.
- [9] E. Blåsten and H. Liu, *On corners scattering stably and stable shape determination by a single far-field pattern*, arXiv:1611.03647

### Accepted/In press

- [1] E. Blåsten, X. Li, H. Liu and Y. Wang, *On vanishing and localizing of transmission eigenfunctions near singular points: a numerical study*, Inverse Problems, arXiv:1704.01885
- [2] Y. Guo, J. Li, H. Liu and X. Wang, *Mathematical design of a novel input/instruction device using a moving emitter*, Inverse Problems, arXiv:1609.05205
- [3] E. Blåsten and H. Liu, *On vanishing near corners of transmission eigenfunctions*, Journal of Functional Analysis, arXiv:1701.07957

- [4] J. Li, X. Li, H. Liu and Y. Wang, *Electromagnetic interior transmission eigenvalue problem for inhomogeneous media containing obstacles and its applications to near cloaking*, IMA J. Appl. Math., [arXiv:1701.05301](#)
- [5] H. Liu and J. Xiao, *On electromagnetic scattering from a penetrable corner*, SIAM J. Math. Anal., [arXiv:1611.04250](#)
- [6] X. Ji and H. Liu, *On isotropic cloaking and interior transmission eigenvalue problems*, European J. Appl. Math., [arXiv:1604.05498](#)
- [7] H. Liu, L. Rondi and J. Xiao, *Mosco convergence for  $H(\text{curl})$  spaces, higher integrability for Maxwell's equations, and stability in direct and inverse EM scattering problems*, Journal of the European Mathematical Society (JEMS), [arXiv:1603.07555](#)

### Published

- [1] Y. Deng, H. Liu and G. Uhlmann, *On regularized full- and partial-cloaks in acoustic scattering*, Communications in Partial Differential Equations, **42** (2017), no. 6, 821–851.
- [2] H. Liu and J. Xiao, *Decoupling elastic waves and its applications*, J. Differential Equations, **265** (2017), no. 8, 4442–4480.
- [3] Y. Shi, Y. Li, S. Li and H. Liu, *State feedback design for nonlinear quadratic systems with randomly occurring actuator saturation*, International Journal of Control, Automation and Systems, **15** (2017), Issue 3, pp. 1117–1124.
- [4] H. Li and H. Liu, *On three-dimensional plasmon resonance in elastostatics*, Annali di Matematica Pura ed Applicata (AMPA), **196** (2017), Issue 3, pp 1113–1135.
- [5] H. Liu and X. Liu, *Recovery of an embedded obstacle and its surrounding medium by formally-determined scattering data*, Inverse Problems, **33** (2017), 065001.
- [6] H. Liu, Y. Wang and S. Zhong, *Nearly non-scattering electromagnetic wave set and its application*, Zeitschrift für Angewandte Mathematik und Physik (ZAMP), **68** (2017), 68:35.
- [7] J. Li, H. Liu and Y. Wang, *Recovering an electromagnetic obstacle by a few phaseless backscattering measurements*, Inverse Problems, **33** (2017), 035011.
- [8] X. Wang, Y. Guo, D. Zhang and H. Liu, *Fourier method for recovering acoustic sources from multi-frequency far-field data*, Inverse Problems, **33** (2017), 035001.
- [9] H. Liu, M. Petrini, L. Rondi and J. Xiao, *Stable determination of sound-hard polyhedral scatterers by a minimal number of scattering measurements*, J. Differential Equations, **262** (2017), no. 3, 1631–1670.

- [10] H. Li and H. Liu, *On anomalous localized resonance for the elastostatic system*, SIAM J. Math. Anal., **48** (2016), no. 5, 3322–3344.
- [11] Y. Deng, H. Liu and G. Uhlmann, *Full and partial cloaking in electromagnetic scattering*, Arch. Ration. Mech. Anal., **223** (2017), 265–299.
- [12] H. Liu, Y. Wang and C. Yang, *Mathematical design of a novel gesture-based instruction/input device using wave detection*, SIAM J. Imaging Sci., **9** (2016), no. 2, 822–841.
- [13] G. Hu, J. Li, H. Liu and Q. Wang, *A numerical study of complex reconstruction in inverse elastic scattering*, Comm. Comput. Phys., **19** (2016), no. 5, 1265–1286.
- [14] J. Li, H. Liu, H. Song and Q. Zhang, *Finite element method for valuation of American lookback options* (in Chinese), Mathematica Numerica Sinica, **38** (2016), 245–256.
- [15] Y. Guo, D. Hömberg, G. Hu, J. Li and H. Liu, *A time-domain sampling method for inverse acoustic scattering problems*, J. Comput. Phys., **314** (2016), 647–660.
- [16] K. Ando, H. Kang and H. Liu, *Plasmon resonance with finite frequencies: a validation of the quasi-static approximation for diametrically small inclusions*, SIAM J. Appl. Math., **76** (2016), no. 2, 731–749.
- [17] H. Liu and G. Uhlmann, *Determining both sound speed and internal source in thermo and photoacoustic tomography*, Inverse Problems, **31** (2015), 105005. **(Selected into Editorial Highlights of 2015)**
- [18] J. Li, P. Li, H. Liu and X. Liu, *Recovering multiscale buried anomalies in a two-layered medium*, Inverse Problems, **31** (2015), 105006.
- [19] H. Li, J. Li and H. Liu, *On quasi-static cloaking due to anomalous localized resonance in  $\mathbb{R}^3$* , SIAM J. Appl. Math., **75** (2015), 1245–1260.
- [20] J. Li and H. Liu, *Recovering a polyhedral obstacle by a few backscattering measurements*, J. Differential Equations, **259** (2015), 2101–2120.
- [21] G. Hu and H. Liu, *Nearly cloaking the elastic wave fields*, Journal de Mathématiques Pures et Appliquées, **104** (2015), 1045–1074.
- [22] G. Hu, J. Li and H. Liu, *Uniqueness in determining refractive indices by formally-determined far-field data*, Applicable Analysis, **94** (2015), 1259–1269.
- [23] J. Li, H. Liu, L. Rondi and G. Uhlmann, *Regularized transformation-optics cloaking for the Helmholtz equation: from partial cloak to full cloak*, Comm. Math. Phys., **335** (2015), 671–712.

- [24] J. Li, H. Liu and Q. Wang, *Fast imaging of electromagnetic scatterers by a two-stage multilevel sampling method*, Discrete and Continuous Dynamical Systems, Series S, **8** (2015), 547–561.
- [25] H. Liu, H. Zhao and C. Zou, *Determining scattering support of anisotropic acoustic mediums and obstacles*, Comm. Math. Sci., **13** (2015), no. 4, 987–1000. (Special issue in honor of Prof. George Papanicolaou’s 70th birthday)
- [26] J. Li, H. Liu and H. Sun, *Damping mechanisms for regularized transformation-acoustics cloaking*, Contemp. Math., AMS, **615** (2014), 233–253. (Special issue in honor of Prof. Gunther Uhlmann’s 60th birthday)
- [27] G. Hu, J. Li, H. Liu and H. Sun, *Inverse elastic scattering for multiscale rigid bodies with a single far-field pattern*, SIAM J. Imaging Sci., **7** (2014), 1799–1825.
- [28] G. Hu, J. Li and H. Liu, *Recovering complex elastic scatterers by a single far-field pattern*, J. Differential Equations, **257** (2014), 469–489.
- [29] G. Bao, H. Liu and J. Zou, *Nearly cloaking the full Maxwell equations: cloaking active contents with general conducting layers*, Journal de Mathématiques Pures et Appliquées (9), **101** (2014), 716–733.
- [30] J. Li, H. Liu, Y. Sun and Q. Wang, *Ground detection by a single electromagnetic measurement*, J. Comput. Phys., **257** (2014), 554–571.
- [31] J. Li, H. Liu and J. Zou, *Locating multiple multiscale acoustic scatterers*, SIAM Multiscale Model. Simul., **12** (2014), 927–952.
- [32] G. Bao and H. Liu, *Nearly cloaking the electromagnetic fields*, SIAM J. Appl. Math., **74** (2014), 724–742.
- [33] J. Li, H. Liu and Q. Wang, *Enhanced multilevel linear sampling methods for inverse scattering problems*, J. Comput. Phys., **257** (2014), 554–571.
- [34] J. Li, H. Liu and Q. Wang, *Locating multiple multi-scale electromagnetic scatterers by a single far-field measurement*, SIAM J. Imaging Sci., **6** (2013), 2285–2309.
- [35] I. Kocyigit, H. Liu and H. Sun, *Regular scattering patterns for near-cloaking devices and their implications for invisibility cloaking*, Inverse Problems, **29** (2013), 045005.
- [36] J. Li, H. Liu, Z. Shang and H. Sun, *Two single-shot methods for locating multiple electromagnetic scatterers*, SIAM J. Appl. Math., **73** (2013), 1721–1746.
- [37] J. Li and H. Liu, *Optimal shape for a nozzle design problem using an arbitrary Lagrangian-Eulerian finite element method*, Journal of Inverse and Ill-posed Problems, **22** (2014), 9–30.

- [38] J. Li, S. Li and H. Liu, *Restarted nonlinear conjugate gradient method for parameter identification in elliptic system*, Eurasian J. Math. Comput. Appl., Vol. 1, No. 1 (2013), 62–77.
- [39] H. Liu, *Schiffer’s conjecture, interior transmission eigenvalues and invisibility cloaking: singular problem vs. nonsingular problem*, Contemp. Math., AMS, **598** (2013), 147–154. (Special issue in honor of Prof. Sigurdur Helgason’s 85th birthday)
- [40] H. Liu, *On near-cloak in acoustic scattering*, J. Differential Equations, **254** (2013), 1230–1246.
- [41] H. Liu, Z. J. Shang, H. Sun and J. Zou, *On singular perturbation of the reduced wave equation and scattering from an embedded obstacle*, J. Dynamics and Differential Equations, **24** (2012), 803–821.
- [42] J. Li and H. Liu, *A class of polarization-invariant directional cloaks by concatenation via transformation optics*, Progress in Electromagnetics Research, **123** (2012), 175–187.
- [43] H. Liu and H. Sun, *Enhanced near-cloak by FSH lining*, Journal de Mathématiques Pures et Appliquées (9), **99** (2013), 17–42. **(awarded Highly Cited Research by the journal in 12/2016)**
- [44] J. Li, H. Liu and H. Sun, *Enhanced approximate cloaking by SH and FSH lining*, Inverse Problems, **28** (2012), 075011. **(selected as Insights by the journal)**
- [45] J. Li, H. Liu, H. Sun and J. Zou, *Reconstructing acoustic obstacles by planar and cylindrical waves*, J. Math. Phys., **53** (2012), 103705. **(selected as Research Highlights and Cover by the journal)**
- [46] J. Li, H. Liu, H. Sun and J. Zou, *Imaging obstacles by hypersingular point sources*, Inverse Problems and Imaging, **7** (2013), 545–563.
- [47] K. Agarwal, X. Chen, L. Hu, H. Liu and G. Uhlmann, *Polarization-invariant directional cloaking by transformation optics*, Progress in Electromagnetics Research, **118** (2011), pp. 415–423.
- [48] H. Liu and T. Zhou, *Transformation optics and approximate cloaking*, Contemp. Math., AMS, **559** (2011), 65–83.
- [49] H. Liu and T. Zhou, *Two dimensional invisibility cloaking via transformation optics*, Discrete and Continuous Dynamical Systems, Series A, **31** (2011), pp. 525–543.
- [50] J. Li, H. Liu and S. Mao, *Approximate acoustic cloaking in inhomogeneous isotropic space*, Science China Math, **56** (2013), 2631–2644.
- [51] H. Liu and T. Zhou, *On approximate electromagnetic cloaking by transformation media*, SIAM J. Appl. Math., **71** (2011), 218–241.

- [52] U. Hetmaniuk, H. Liu, *On three dimensional active acoustic cloaking devices and their simulation*, SIAM J. Appl. Math., **70** (2010), 2996–3021.
- [53] H. Liu, *Virtual reshaping and invisibility in obstacle scattering*, Inverse Problems, **25**(2009), 045006. **(Selected into Editorial Highlights of 2009)**
- [54] H. Liu, H. Zhang and J. Zou, *Recovery of polyhedral scatterers by a single electromagnetic far-field measurement*, J. Math. Phys., **50** (2009), 123506.
- [55] J. Li, H. Liu and J. Zou, *Strengthened linear sampling method with a reference ball*, SIAM J. Sci. Comput., **31** (2009), no. 6, 4013–4040.
- [56] X. Ding, H. Liu, Z. Shang and G. Sun, *Preservation of stability properties near fixed points of linear Hamiltonian systems by symplectic integrators*, Appl. Math. Comp., **217** (2011), 6105–6114.
- [57] H. Liu, *On recovering polyhedral scatterers with acoustic far-field measurements*, IMA J. Appl. Math, **74** (2009), 264–272.
- [58] H. Liu, and J. Zou, *Uniqueness in determining multiple polygonal scatterers of mixed type*, Discrete and Continuous Dynamical Systems, Series B, **9** (2008), no. 2, 375-396
- [59] H. Liu, *A global uniqueness for formally determined inverse electromagnetic obstacle scattering*, Inverse Problems, **24** (2008), 035018. **(Selected into Editorial Highlights of 2008)**
- [60] H. Liu, M. Yamamoto and J. Zou, *New reflection principles for Maxwell equations and their applications*, Numer. Math.: TMA, **2** (2009), 1–17.
- [61] J. Li, H. Liu and J. Zou, *Multilevel linear sampling method for inverse scattering problems*, SIAM J. Sci. comput., **30** (2008), 1228-1250.
- [62] H. Liu, M. Yamamoto and J. Zou, *Reflection principle for Maxwell's equations and its application to inverse electromagnetic scattering problem*, Inverse Problems **23** (2007), 2357–2366. **(Selected into Editorial Highlights of 2007)**
- [63] H. Liu and J. Zou, *On unique determination of partially coated polyhedral scatterers with far-field measurements*, Inverse Problems, **23** (2007), 297–308.
- [64] H. Liu and J. Zou, *Zeros of Bessel and spherical Bessel functions and their applications for uniqueness in inverse acoustic obstacle scattering problems*, IMA J. Appl. Math. **72** (2007), 817–831.
- [65] J. Hong, S. Jiang, C. Li and H. Liu, *Explicit multi-symplectic methods for Hamiltonian wave equations*, Commun. Comput. Phys., **2** (2007), no. 4, 662–683.

- [66] H. Liu and J. Zou, *Uniqueness in an inverse acoustic obstacle scattering problem for both sound-hard and sound-soft polyhedral scatterers*, *Inverse Problems*, **22** (2006), 515–524. **(Selected as a Featured Article)**
- [67] H. Liu and J. Zou, *Some new additive Runge-Kutta methods and their applications*, *J. Comput. Appl. Math.* **190** (2006), 74–98.
- [68] H. Liu and K. Zhang, *Multi-symplectic Runge-Kutta-type methods for Hamiltonian wave equations*, *IMA J. Numer. Anal.* **26** (2006), 252–271.
- [69] J. Hong, H. Liu and G. Sun, *The multi-symplecticity of partitioned Runge-Kutta methods for Hamiltonian PDEs*, *Math. Comp.* **75** (2006), no. 253, 167–181.
- [70] R. Zhang, H. Liu and K. Zhang, *Numerical dispersion relation of multi-symplectic Runge-Kutta methods for Hamiltonian PDEs*, *Northeast Math. J.*, **22** (2006), 349–356.
- [71] R. P. K. Chan, H. Liu and G. Sun, *Efficient symplectic Runge-Kutta methods*, *Appl. Math. Comput.*, **172** (2006), 908–924.
- [72] J. Hong, H. Liu and G. Sun, *Spurious behaviors of a symplectic integrator*, *Comput. Math. Appl.*, **50** (2005), no. 3-4, 519–528.
- [73] H. Liu and G. Sun, *Implicit Runge-Kutta methods based on Lobatto quadrature formula*, *Inter. J. Comput. Math.*, **82** (2005), 77–88.
- [74] H. Liu, K. Zhang and R. Zhang, *MSPRK methods for the Korteweg-de Vries equation*, *Northeast Math. J.*, **21** (2005), no.4, 387–390.
- [75] H. Liu and G. Sun, *Symplectic RK and symplectic PRK methods with real eigenvalues*, *J. Comput. Math.* **22** (2004), 769–776.
- [76] H. Liu, X. Liu and T. Wang, *MBSP and CBSP of Orlicz functional space*, *Acta Anal. Funct. Appl.*, **3** (2001), no. 3, 236–242. **(An undergraduate paper)**

## CONFERENCE PROCEEDING PUBLICATIONS

1. H. Liu and J. Zou, *On Uniqueness in Inverse Acoustic and Electromagnetic Obstacle Scattering Problems*, *Journal of Physics: Conference Series*, Applied Inverse Problems, Vancouver, Canada, 2007
2. H. Liu and J. Zou, *On Uniqueness in Inverse Obstacle Scatterings*, *Proceedings of The 2nd International Conference on Scientific Computing and Partial Differential Equations and The First East Asia SIAM Symposium*, Hong Kong., 2006
3. H. Liu and J. Zou, *Inverse Obstacle Scattering: Some Theory and Numerics*, *Oberwolfach Reports*, Vol 4, Issue 1, 2007, 331–333



## RESEARCH GRANTS AND AWARDS

- Calderon Prize, 2017.
- Academic Staff Fellowship, Hong Kong Baptist University, 2017.
- The paper “Enhanced Near-Cloak by FSH Lining” was awarded Highly Cited Research by the journal J. Math. Pures Appl. in 12/2016.
- MediaV Prize, The 8th International Conference on Inverse Problems and Related Topics, June 27–July 1, 2016, Seoul, Korea.
- PI, Hong Kong RGC General Research Fund, 12302017, 2018–2020. HK\$ 314,900
- PI, HKBU Grant, FRG2/16-17/071, 2017–2018. HK\$ 135,000.
- PI, HKBU Grant, FRG1/16-17/036, 2017–2018. HK\$ 50,000.
- PI, HKBU Grant, FRG2/15-16/012, 2016–2017. HK\$ 142,500
- PI, Hong Kong RGC General Research Fund, 12302415, 2015–2018. HK\$ 631,972
- PI, HKBU Grants, FRG1/14-15/009 and FRG2/14-15/033, 2014–2015. HK\$ 200,000
- PI, HKBU Start-up Fund, 2014–2015. HK\$ 120,000
- Co-PI, Hong Kong RGC General Research Fund, 405513, 2013–2016. HK\$ 868,303
- PI, USA NSF Grant, DMS 1207784, 2012–2015. US \$105,000.00 .
- PIMS Postdoctoral Fellowship, Pacific Institute of Mathematical Sciences, Canada, 2008–2010.
- Award for Best Research Output by Postgraduate, The Chinese University of Hong Kong, 2008.

## EDITORIAL BOARD

- Inverse Problems and Imaging (IPI), 2016–
- Journal of Korean Society for Industrial and Applied Mathematics (JKSIAM), 2014–
- Contemporary Analysis and Applied Mathematics (CAAM), 2015–

## PLENARY LECTURES

- International Conference on Recent Advances in Computational and Applied Mathematics, Wuhan University, China, Dec 2017.
- AIP Conference 2017, Inverse Problems International Association (IPIA), Hangzhou, China, May 2017.

- International Workshop on Advances in Numerical PDEs and Fast Solvers, Dec. 15–18, 2016, Wuhan, China.
- The 8th International Conference on Inverse Problems and Related Topics, June 27–July 1, 2016, Seoul, Korea.
- The Eighth International Workshop on Theoretical and Computational Analyses for Inverse Problems, June 18–19, 2016, Beijing, China.
- Annual Meeting of Beijing Computational Mathematics Society, Beijing, China, July, 2015.
- AIP Conference 2015, Inverse Problems International Association (IPIA), Helsinki, Finland, May 2015.
- International Conference on Inverse Problems and Optimal Control, Hong Kong, Dec 2014.
- International Conference on Inverse Problems and PDE Control, Chengdu, Sichuan University, China, July 30–Aug 3, 2012.

## INVITED LECTURES

- Colloquium speaker, Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, China, July 25, 2017.
- Colloquium speaker, Department of Mathematics, Harbin Institute of Technology, Harbin, China, July 2017.
- Colloquium speaker, Department of Mathematics, Heilongjiang University, Harbin, China, July 2017.
- Invited speaker, Workshop on Inverse Problems and Seismic Imaging, Xi'an Jiaotong University, Shaanxi, China, July 01–02, 2017.
- Colloquium speaker, Faculty of Science, Qilu University of Technology, Jinan, June 2017.
- Colloquium speaker, Applied Math Institute, Chinese Academy of Sciences, Beijing, June 2017.
- Colloquium speaker, Department of Mathematics, Hunan University, May 2017.
- Colloquium speaker, Department of Mathematics, Hunan Normal University, May 2017.
- Colloquium speaker, Applied Math Institute, Chinese Academy of Sciences, Beijing, June 2017.

- Colloquium speaker, Department of Mathematics, Central South University, Hunan, May 15, 2017.
- Colloquium speaker, Department of Mathematics, Shanghai Jiaotong University, Shanghai, April 17, 2017.
- Colloquium speaker, Department of Mathematics, Nanjing University of Aeronautics and Astronautics, China, April 14, 2017.
- Minisymposium speaker, The 10th International Conference on Computational Physics (ICCP10), Macau, China, Jan 16–20, 2017.
- Invited speaker, Special Session on Inverse Scattering, Annual Meeting of China Society for Industry and Applied Math, Xiangtan, Hunan, China, Aug 12–14, 2016.
- Invited speaker, Workshop on Inverse Problems, Computation and Applications, Zhejiang University, Hangzhou, China, July 2016.
- Colloquium speaker, Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, China, June 2016.
- Colloquium speaker, Department of Mathematics, Renmin University, Beijing, China, June 2016.
- Minisymposium speaker, WCCM XII and APCOM VI, July 24–29, 2016, Seoul, Korea.
- Minisymposium speaker, The Eighth International Conference on Inverse Problems and Related Topics, Seoul, Korea, June 27–July 1, 2016.
- Invited speaker, The Eight International Workshop on Theoretical and Computational Analyses for Inverse Problems, Beijing, June 18–19, 2016.
- Invited speaker, IAS Workshop on Inverse Problems, Imaging and PDEs, HKUST Jockey Club Institute for Advanced Study, Hong Kong, Sept 28–Oct 2, 2015.
- Invited speaker, The Third Chongqing Workshop on Computational Mathematics, Chongqing, China, June 25–26, 2015.
- Mini-course on cloaking, National Center of Theoretical Studies, National Taiwan University, Taiwan, July 15–22, 2015.
- Colloquium speaker, Department of Mathematics, Southeast University, Nanjing, June 3, 2015.
- Invited speaker, Spectral and Analytic Inverse Problems, Institut Henri Poincaré, Paris, France, May 4–7, 2015.

- Invited minisymposium speaker, The 8th ICIAM, Beijing, China. August 10–14, 2015.
- Invited speaker, Inverse Problems in the Physical Sciences, IP-Phys2015, Santiago, Chile, August 35, 2015.
- Colloquium speaker, Department of Mathematics, Inha University, Incheon, S. Korea, Dec 2014.
- Invited speaker, Recent Advances on Numerical Analysis, Shanghai Jiaotong University, Shanghai, November 15-16, 2014.
- Invited speaker, International Conference on Applied Mathematics, City University of Hong Kong, Hong Kong, December 1-5, 2014.
- Invited speakers, Minisymposia “High Frequency Wave Propagation and Related Imaging Problems” and “Inverse Scattering Problems in Imaging Science”, SIAM Conference on Imaging Science, May 12–14, 2014.
- Invited speaker, Applied Math Seminar, Purdue University, West Lafayette, April 4, 2014.
- Invited speaker, Math Department, University of Texas, Austin, March 18, 2014.
- Invited speaker, Workshop on Numerical Methods for Wave Propagation in the Second International Conference on Engineering and Computational Mathematics (ECM2013), Hong Kong Polytechnic University, December 16-18, 2013.
- Invited speaker, Analysis Seminar, Clemson University, SC, Nov 1, 2013.
- Invited speaker, PDE Seminar, North Carolina State University, Raleigh, NC, Sept 11, 2013.
- Invited speaker, special session on Applied Analysis and Inverse Problems, AMS Fall Southeastern Section Meeting, University of Louisville, Louisville, KY, October 5–6, 2013.
- Invited speaker, Applied and Computational Math Seminar, Florida International University, Oct 5 2013.
- Invited speaker, Copper Country Workshop on Numerical Analysis and Inverse Problems, Aug 12–14, 2013, Michigan Technological University.
- Invited seminar speaker, Department of Mathematics, Shanghai Jiaotong University, Shanghai, China, July 24, 2013.
- Invited speaker to minisymposia “Inverse Scattering Problems” and “Invisibility Cloaking”, Applied Inverse Problems Conference, Korea Advanced Institute for Science and Technology, Daejeon, Korea, July 1–5, 2013.

- Invited speaker, The Second International Conference on Interdisciplinary Applied and Computational Mathematics, Hangzhou, China, 19–22 June, 2013.
- Invited speaker to the session “Inverse Problems”, The Second Pacific Rim Mathematical Association (PRIMA) Congress, Shanghai, China, June 24–28, 2013.
- Invited seminar speaker, Department of Mathematics, Southeast University, Nanjing, China, June 9, 2013.
- Invited seminar speaker, Institute of Applied Mathematics, Chinese Academy of Sciences, Beijing, China, June 7, 2013.
- Invited seminar speaker, Institute of Mathematics, Chinese Academy of Sciences, Beijing, China, June 6, 2013.
- Invited speaker, The First Chongqing Workshop on Computational and Applied Mathematics, Chongqing, China, May 30–June 2, 2013.
- Invited speaker, Mathematical Physics Seminar, Department of Math and Statistics, UNCC, April 2013.
- Invited speaker, The International Workshop on Scientific Computing for Young Chinese Mathematicians, March 15–17, 2013, Hong Kong SAR.
- Invited speaker, Workshop on Scattering and Inverse Scattering, Dec 2012, Zhejiang University, China.
- Invited speaker, International Conference on Inverse Problems and Applications, Sept 17–21, 2012, Hangzhou, Zhejiang University, China.
- Invited speaker, Workshop on Inverse Scattering, Aug 2012, Michigan State University.
- Invited minisymposium speaker, AMS and MAA joint annual meeting, Boston, Jan 4–7, 2012.
- Invited speaker, Workshop on Geometric Analysis on Euclidean and Homogeneous Spaces, Tufts University, Jan 1–8, 2012.
- Invited speaker, Mathematical Physics Seminar, Department of Math and Statistics, UNCC, Nov 2011.
- Invited minisymposium speaker, AMS Western Sectional Meeting, Salt Lake City, Utah, 2011.
- Invited speaker, 5th Pacific Rim Conference on Mathematics, Stanford University, USA, 2010.

- BIRS conference on Inverse Transport Theory and Tomograph, Banff, Canada, 2010.
- Invited colloquium speaker, Department of Mathematics, University of Zurich, Switzerland, 2010.
- Invited colloquium speaker, Department of Mathematics, University of Kansas, Lawrence, USA, 2010.
- Invited speaker, Applied Math Seminar, Department of Mathematics, University of California, Irvine, USA, 2010.
- Invited speaker, Applied Math Seminar, Department of Mathematics, University of Texas, Austin, USA, 2009.
- Invited mini-symposium speaker, SIAM Conference on Mathematical Aspects of Materials Science, May 23-26, 2010, Philadelphia, Pennsylvania, USA.
- Invited speaker, Applied Math Seminar, Department of Mathematics, Michigan State University, USA, 2009.
- Invited mini-symposium speaker, SIAM conference on Analysis of Partial Differential Equations, 2009, Miami, Florida, USA.
- Invited speaker, AMS Mathematics Research Community (MRC) conference on Inverse Problems, Snowbird, Utah, USA, 2009.
- Invited mini-symposium speaker, *Cloaking and Invisibility*, SIAM Annual Meeting, Denver, Colorado, USA, 2009.
- Invited mini-course speaker, Morningside Center of Mathematics, Chinese Academy of Sciences, Beijing, China, 2009.
- Invited colloquium speaker, Department of Mathematics, Shanghai Jiaotong University, Shanghai, China, 2009.
- Invited colloquium speaker, Institute of Applied Mathematics, Chinese Academy of Sciences, Beijing, China, 2009.
- Invited speaker, Inverse Problems Seminar, University of Washington, Oct. 2008.
- Invited speaker, Multiscale Modeling, Analysis, and Simulations, March 27 & 28, 2008, Michigan Center for Industrial and Applied Mathematics, Michigan State University.
- Invited speaker, Inverse Problems Seminar, University of Washington, Nov. 2007.
- Invited colloquium speaker, Institute of Mathematics, Chinese Academy of Sciences, Beijing, May, 2007.
- Invited colloquium speaker, Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, May, 2007.
- Invited speaker, Computational Electromagnetism and Acoustics, Feb. 4–10, 2007, Oberwolfach, Germany.

- Invited speaker, RGC Postgraduate Student Conference on Computer Image & Vision, June 12–15, 2007, Hong Kong.
- Contributed speaker, The 2nd International Conference on Scientific Computing and Partial Differential Equations & The First East Asia SIAM Symposium, Dec. 2006, Hong Kong.

## CONFERENCES ORGANIZED

- Organizing chair, 3rd East Asia Section of IPIA–Young Scholars Symposium, HKBU, Hong Kong, Sept 23–24, 2017.
- Minisymposium co-organizer, “Visibility and invisibility in wave scattering”, AIP Conference 2017, Hangzhou, China, May 29–June 2, 2017.
- Organizing co-chair, Young Scholars Workshop on Inverse Problems, Imaging and PDEs, Souther University of Science and Technology, Shenzhen, March 24–26, 2017.
- International Advisor Board, Third International Conference on Analysis and Applied Mathematics, Institute of Mathematics and Mathematical Modelling, Sept 7–10, 2016, Almaty, Kazakhstan.
- Minisymposium co-organizer, “Qualitative and quantitative inverse scattering algorithms”, The 8th International Conference on Inverse Problems and Related Topics, Seoul, Korea, Jun 27–July 1, 2016.
- Co-chair, First East Asia Symposium of Inverse Problems International Association, Feb 29–March 1, 2016, Shenzhen, China.
- Organizing Committee, Hong Kong Colloquium on Inverse Problems, Imaging and PDEs, Nov 6, 2015, IAS, HKUST.
- Minisymposium co-organizer, “Recent advances on inverse scattering problems”, International Congress on Industrial and Applied Mathematics (ICIAM), Beijing, China, Aug 10-14, 2015.
- Minisymposium co-organizer, “Recent developments on numerical inverse scattering problems”, AIP Conference 2015, Helsinki, Finland, May 25–29, 2015.
- Minisymposium co-organizer, “Analysis and Computation for PDE-based Inverse Problems”, Scientific Computation and Partial Differential Equations (SCPDE 14), Hong Kong, December 8–12, 2014.
- Minisymposium co-organizer, “Inverse Scattering Problems in Imaging Science”, SIAM Conference on Imaging Science, Hong Kong, May 12–14, 2014.
- Minisymposium co-organizer, Applied Inverse Problems, Texas A& M University, 2010.

- Special session organizer, Inverse Problems: Analysis and Computations, AMS & MAA joint annual meeting, San Francisco, USA, 2010.
- Symposium organizer, Multisymplectic Integrators, International Conference on Scientific Computation and Differential Equations, SciCADE09, Beijing, China, 2009.

## OTHER PROFESSIONAL AND OUTREACH ACTIVITIES

- **Reviewer** for AMS Math Reviews and Zentralblatt MATH
- **Panelist** for the USA NSF, 2013.
- **Referee for journals and conferences**
- **Examiner for tenures and promotions**

## GRADUATE STUDENTS AND POSTDOCS SUPERVISED

- Xiaofei Li (Postdoc, 2016–present, co-supervised at SUSTC, China)
- Jingni Xiao (PhD at HKBU, 2015–present); Hongjie Li (PhD at HKBU; awardee of the Hong Kong PhD Fellowship; 2016–); Xinlin Cao (PhD at HKBU; awardee of the Hong Kong PhD Fellowship; 2016–); Shiqi Ma (PhD at HKBU & SUSTC, 2016–); Wing Yan Tsui (PhD at HKBU, 2017–)
- Hongpeng Sun (PhD completed, 2013, co-supervised at Institute of Math, Chinese Academy of Sciences); Changjian Zou (PhD completed, 2014, co-supervised at UC Irvine); Kirill Golubnichiy (PhD co-supervised at UNC Charlotte).

## UNDERGRADUATE STUDENTS SUPERVISED

- Ke Ren (recipient of SURF Fellowship, Faculty of Science, HKBU); summer research, 2016.
- Zizhen Song, Keli Guo and Zhongli Jiang (Faculty Advisor); Honorable Mention in Interdisciplinary Contest In Modeling (USA), 2016.
- Tao Ma (recipient of SURF Fellowship, Faculty of Science, HKBU) and Yuan Ni; summer research, 2015.