JIAN ZHAI

Institute for Advanced Study, HKUST
IAS 4009, Lo Ka Chung Building, HKUST, Clear Water Bay, Kowloon, Hong Kong
jian.zhai@outlook.com http://jianzhai.github.io

EMPLOYMENT

Postdoctoral Fellow, Institute for Advanced Study, **Hong Kong University of Science and Technology**, Mar. 2019 - Now

Visiting Lecturer, Department of Mathematics, **University of Washington**, Sep. 2018 - Mar. 2019

Postdoctoral Fellow, Department of Computational and Applied Mathematics, **Rice University**, July 2018 - Aug. 2018

EDUCATION

Rice University May 2018
Ph.D. in Computational and Applied Mathematics
Advisor: Prof. Maarten V. de Hoop

Purdue University Aug. 2013 - Aug. 2015
Ph.D. Student in Mathematics
Advisor: Prof. Maarten V. de Hoop

Fudan University Jun. 2013
M. S. in Mathematics
Advisors: Prof. Jin Cheng, Prof. Shuai Lu

Sichuan University Jun. 2010
B. S. in Mathematics

RESEARCH INTERESTS

- Inverse Problems, Ill-posed Problems
- Partial Differential Equations
- Integral Geometry
- Scientific Computing

PUBLICATIONS

- (with E. Beretta, M. V. de Hoop, E. Francini and S. Vessella) Uniqueness and Lipschitz stability of an inverse boundary value problem for time-harmonic elastic waves, *Inverse Problems*, **33** (2017) 035013.
- (with M. V. de Hoop and G. Nakamura) Reconstruction of Lamé moduli and density at the boundary enabling directional elastic wavefield decomposition, *SIAM J. Appl. Math.*, **77** (2017) 520-536.
- (with M. V. de Hoop, A. Iantchenko, G. Nakamura) Semiclassical analysis of elastic surface waves, *preprint*, arXiv:1709.06521.

- (with M. V. de Hoop and G. Nakamura) Unique recovery of piecewise analytic density and stiffness tensor from the elastic-wave Dirichlet-to-Neumann map, *preprint*, arXiv:1803.01091.
- (with M. V. de Hoop and T. Saksala) Mixed ray transform on simple 2-dimensional Riemannian manifolds, *Proc. Amer. Math. Soc*, to appear, arXiv:1808.01589.
- (with Y. Yang) Unique determination of a transversely isotropic perturbation in a linearized inverse boundary value problem for elasticity, *preprint*, arXiv:1808.01505.
- (with M. V. de Hoop and G. Uhlmann) Inverting the local geodesic ray transform of higher rank tensors, *preprint*, *Inverse Problems*, to appear, arXiv:1810.11088.
- (with M. V. de Hoop, A. Iantchcenko and R. D. van der Hilst) Semiclassical inverse spectral problem for elastic Love surface waves in isotropic media, *preprint*.

AWARDS

- **Alan Weiser Memorial Travel Awards**, Rice University, CAAM May 2017

PRESENTATIONS

- Canadian Mathematical Society Winter Meeting, Vacouver, Canada Dec. 2018
- Differential Geometry and PDE Seminar, University of Washington, Seattle, WA, USA Oct. 2018
- International Workshop on Inverse Problems for PDEs, Nanjing, China Sep. 2018
- SIAM Annual Meeting, Portland, OR, USA July 2018
- Seminar, Zhejiang University, Hangzhou, China Jun. 2017
- Applied Inverse Problem Conference, Hangzhou, China Jun. 2017
- Graduate Seminar, Rice University, Houston, TX, USA Feb. 2017
- IAS Workshop on Inverse Problems, Imaging and PDEs, HKUST, Hong Kong, China Dec. 2016
- Seminar, Fudan University, Shanghai, China May 2016
- Graduate Seminar, Rice University, Houston, TX, USA Nov. 2015

TEACHING

- Introduction to Differential Equations (MATH 307), Instructor, University of Washington, Winter 2019.
- Numerical analysis I (CAAM 453), Teaching Assistant, Rice University, Fall 2017.

PROGRAMMING SKILLS

Matlab, C/C++