

# Lingyun Qiu

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PROFESSIONAL EXPERIENCE Postdoctoral Associate, IMA, University of Minnesota, 2013/08 –  
Technical visitor, ExxonMobil Research & Engineering, 2013/12 – 2014/08

EDUCATION **Purdue University**, West Lafayette, IN, USA

Ph.D., Mathematics, August 2013

- Dissertation: *Inverse boundary value problems for time-harmonic waves: Conditional stability and iterative reconstruction*
- Adviser: Maarten V. de Hoop
- Area of Study: Inverse problem for partial differential equations, iterative methods in Banach spaces

**Tianjin University**, Tianjin, P.R. China

M.Sc., Mathematics, March 2006

- Dissertation: *Entire positive solution to the system of nonlinear elliptic equations*
- Adviser: Miaoxin Yao
- Area of Study: Nonlinear partial differential equations and systems

B.Sc., Mathematics, June 2003

- Dissertation: *Some estimates of Navier-Stokes equations*
- Adviser: Zhenqiu Zhang
- Area of Study: Nonlinear partial differential equations

PUBLICATIONS AND PREPRINTS Analysis of the magneto-acoustic tomography with magnetic induction  
(with Fadil Santosa), *Preprint*.

Effects of parameterization on the parameter estimation problems  
(with Martin-Daniel Lacasse), *Preprint*.

Modelling of time-harmonic seismic data with the Helmholtz equation and scattering series (with Maarten V. de Hoop and Antônio Sá Barreto), *Preprint*.

Inverse boundary value problem for the Helmholtz equation: Multi-level iterative reconstruction based on conditional Lipschitz stability estimates (with Elena Beretta, Maarten V. de Hoop and Otmar Scherzer ), *Submitted*.

Generalized Convergence Rates Results for Linear Inverse Problems in Hilbert Spaces (with Roman Andreev, Peter Elbau, Maarten V. de Hoop and Otmar Scherzer ), *Submitted*.

An analysis of a multi-level projected steepest descent iteration for nonlinear inverse problems in Banach spaces subject to stability constraints (with Maarten V. de Hoop and Otmar Scherzer), *Numerische Mathematik*, 2014, 1-22.

Inverse boundary value problems for time-harmonic waves: Conditional stability and iterative reconstruction, *PhD thesis*, 2013.

Lipschitz stability of an inverse boundary value problem for a Schrödinger type equation (with Elena Beretta and Maarten V. de Hoop), *SIAM Journal on Mathematical Analysis*, 45 (2013), no.2, 679-699.

Local analysis of inverse problems: Hölder stability and iterative reconstruction (with Maarten V. de Hoop and Otmar Scherzer), Highlights of 2012, *Inverse Problems*, 28 (2012), 045001.

Entire positive solution to the system of nonlinear elliptic equations. (with Miaoxin Yao) *Boundary Value Problems*, Article ID 3249, Volume 2006 (2006).

INVITED  
TALKS

IMA/MCIM Industrial Problems Seminar, University of Minnesota, Minneapolis, MN, US, May 2014

Schlumberger-Tufts Computational and Applied Math Seminar, Boston, MA, US, October 2013

Applied Inverse Problem Conference(AIPC) 2013 Minisymposium on Nonstandard regularization techniques, Daejeon, South Korea, July 2013

AMS Special Session on Control Theory and Inverse Problems for Partial Differential Equations, 2012 Joint Mathematics Meetings, Boston, MA, US, January 2012

Workshop on Inverse Problems in Science and Engineering, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, December 2011

ICIAM 2011 Minisymposium on Contemporary Issues in Geophysical Inversion: Numerical advances, Vancouver, Canada, July 2011

ICIACM 2011, Zhejiang University, Hangzhou, P.R. China, June 2011

AWARDS

Fellowship, Institut Mittag-Leffler, The Royal Swedish Academy of Sciences, March-May 2013

Research Assistantship, Purdue University, 2008-2013

Travel Award, The Second Pacific Rim Mathematical Association Congress, 2013

Travel Award, Applied Inverse Problem Conference, KAIST, Korea, 2013

Travel Award, International Conference on Inverse Problems and PDE Control, 2012

Travel Award, Inverse Problems and PDE Control, Pan-American Advanced Studies Institute, 2012

Travel Award, Workshop on Inverse Problems in Science and Engineering, Isaac Newton Institute for Mathematical Sciences, UK, 2011

T.T.Moh Scholarship, Purdue University, 2006

Honorable Mention Awards in MCM(Mathematical Competition in Modeling), 2003

REFEREE FOR  
JOURNALS  
ACADEMIC  
SERVICE

Mathematical Communications

Organizer of Mini-symposium on Iterative and Regularization Methods for Solving Nonlinear Ill-posed Problems, AIPC 2013, Daejeon, South Korea, July 2013

INDUSTRIAL  
EXPERIENCE

Research Geophysicist, PGS, Houston, TX, May-August, 2012

- Development of the PML boundary condition for second order wave equation
- Implementation and testing of the PML boundary condition for the pseudo-analytical method

TECHNICAL  
SKILLS

**MATLAB** experience: External interfaces with C, C++, Fortran and COMSOL, PDE Toolbox, 3D visualization

Programming: C, C++, C#, Fortran, OpenMP, MPI, Java, JavaScript, SQL

Computer Applications:  $\text{T}_{\text{E}}\text{X}$  ( $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ ,  $\text{BIB}_{\text{E}}\text{X}$ , PSTricks, PGF/TikZ), Microsoft Office

REFERENCES

**Maarten V. de Hoop**

Department of Mathematics  
Purdue University, West Lafayette, Indiana 47907, USA  
mdehoop@purdue.edu

**Gunther Uhlmann**

Department of Mathematics  
University of Washington, Seattle, Washington 98195, USA  
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**Otmar Scherzer**

Johann Radon Institute for Computational and Applied Mathematics (RICAM)  
Austrian Academy of Sciences, Altenberger Str. 69, 4040 Linz, Austria  
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