

Jacob D. Rezac

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Education

Ph.D, Applied Mathematics <i>University of Delaware</i>	2012–2017 (Expected) <i>Newark, DE</i>
M.S., Applied Mathematics <i>Colorado School of Mines</i>	2011–2012 <i>Golden, CO</i>
B.S., Applied Mathematics <i>Colorado School of Mines</i>	2007–2011 <i>Golden, CO</i>

Awards and Honors

University Dissertation Fellowship <i>University of Delaware</i>	2016-2017
University Excellence in Teaching Award, Nominee <i>University of Delaware</i>	2016
Advanced Short Term Research Opportunity Award <i>Oak Ridge National Laboratory, Computational Science and Mathematics Division</i>	2015
Baxter-Sloyer Graduate Teaching Award <i>University of Delaware Mathematical Sciences Department</i>	2015
Top Poster Prize <i>University of Delaware Mathematical Sciences Research Symposium</i>	2015
NSF Graduate Assistance in Areas of National Need (GAAN) Fellow <i>University of Delaware</i>	2013

Publications

1. F. Cakoni and **J. Rezac**, Direct imaging of small scatterers in the time domain. *Journal of Computational Physics*, *Accepted* (2017).
2. **J. Rezac**, N. Imam, and Y. Braiman, Parameter optimization for transitions between memory states in small arrays of Josephson junctions. *Physica A*, *474* (2017).
3. Y. Braiman, N. Nair, **J. Rezac**, and N. Imam, Memory cell operation based on small Josephson junctions arrays. *Superconductor Science and Technology*, *29* (12) (2016). **Selected for Highlights of 2016 collection in Superconductor Science and Technology.**
4. F. Cakoni, D. Colton, and **J. Rezac**, The Born transmission eigenvalue problem. *Inverse Problems*, *32* (10) (2016).
5. H. Haddar and **J. Rezac**, A quasi-backscattering problem for inverse acoustic scattering in the Born regime. *Inverse Problems*, *31* (7) (2015).

Experience

Research Experience.....

Visiting Research Assistant **2016 (Fall months)**

École Polytechnique *Palaiseau, France*

Developed fast numerical methods for reconstructing the speed of sound in a medium using reduced scattered field data.

Visiting Research Assistant **2015 (Summer months)**

Oak Ridge National Laboratories *Oak Ridge, TN*

Studied the application of global optimization schemes to cryogenic computer memory design in the High Performance Computing Research Program with Drs. Neena Imam and Yehuda Braiman.

Visiting Research Assistant **2014 (Summer months)**

École Polytechnique *Palaiseau, France*

Studied reduced data inverse scattering problems with Dr. Housseem Haddar. Research funded by INRIA, the French Institute for Research in Computer Science and Automation.

Industrial Experience.....

Golden Software **Golden, CO**

Consultant *2012*

Mathematical consultant for scientific visualization and statistical data analysis software

Allied Geophysics **Evergreen, CO**

Consultant *2009–2010*

Built mathematical frameworks for geophysical data analysis.

Teaching Experience.....

Teaching Assistant **Winters 2014 and 2016**

University of Delaware *Newark, DE*

Preliminary Exam Preparation Course.

Short course for mathematics graduate students preparing to take a preliminary exam in Real Analysis.

Responsibilities included lecturing, leading discussion sections, and creating homework assignments.

Instructor **Winter 2015**

University of Delaware *Newark, DE*

Analytic Geometry and Calculus A.

Single variable calculus course for science and engineering majors.

Responsibilities included lecturing, leading discussion sections, and creating and grading exams and homework.

Teaching Assistant **2012-2014**

University of Delaware *Newark, DE*

Analytic Geometry and Calculus A, B, and C.

Single and multivariate calculus courses for science and engineering majors.

Responsibilities included leading discussion and computing sections, holding office hours, and grading.

Teaching Assistant **2011–2012**

Colorado School of Mines *Golden, CO*

Calculus for Scientists and Engineers III.

Multivariate calculus course for science and engineering majors.

Responsibilities included leading discussions sections, writing and grading homeworks and quizzes, and holding office hours.

Leadership and Service

Coordinator <i>Hallenbeck Graduate Student Seminar</i>	2014–2016 <i>University of Delaware, Mathematical Sciences</i>
Student Representative <i>Graduate Committee</i>	2014–2016 <i>University of Delaware, Mathematical Sciences</i>
President <i>SIAM Student Chapter</i>	2013–2014 <i>University of Delaware, Mathematical Sciences</i>
Student Representative <i>Chair Search Comittee</i> Referee for Applicable Analysis	2012 <i>Colorado School of Mines, Mathematics Department</i>

Selected Professional Presentations

Obstacle detection using limited measurements of scattered waves <i>NIST Communications Technology Laboratory Seminar</i>	November 2016 <i>Boulder, CO</i>
Time-domain linear sampling methods <i>Inverse Problems: Modeling and Simulation</i>	May 2016 <i>Fethiye, Turkey</i>
Inverse scattering and the transmission eigenvalue problem <i>Missouri State University Mathematics Seminar</i>	Spring 2016 <i>Springfield, MO</i>
Inverse scattering problems in the time domain <i>Computational and Numerical Analysis of Transient Problems</i>	January 2016 <i>Banff, Canada</i>
Inverse acoustic scattering with reduced data, <i>Poster</i> <i>February Fourier Talks</i>	February 2015 <i>College Park, MD</i>

Computing and Programming Skills

Fortran, C++, Matlab, Mathematica, R, MPI