Ilona Ambartsumyan

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Visa status: F1(CPT/OPT eligible)

EDUCATION

University of Pittsburgh, PhD in Mathematics, 2013 - present
Overall GPA: 4.0/4.0, Advisor: Dr. Ivan Yotov

Moscow Institute of Physics and Technology, B.S. and M.S. in Applied Mathematics and Physics, 2007 - 2013, Overall GPA: 4.7/5.0

RELEVANT COURSEWORK

- Sequence in Computer Science (C++, Algorithms and Analysis) and Scientific Computing (Numerical Methods in Scientific Computing, Advanced Scientific Computing)
- Sequence in Probability (Probability, Random Variable, Statistics, Introduction into Statistical Learning)
- Mathematics of Finance

FELLOWSHIPS

- *Andrew Mellon Predoctoral Fellowship*, 2016-2017 (awarded to students of exceptional promise and ability when they have advanced to the dissertation stage)
- *Graduate Research Fellowship*, 2013-present (research grants funded by government and private agencies to provide the student with valuable research training and experience)
- *Arts & Sciences Graduate Fellowship*, 2013-2014 (used to recruit doctoral students of exceptional promise and ability either when they first enroll in the PhD program or for later years)

EXPERIENCE

Research Assistant Summer 2013 - present
University of Pittsburgh, Mathematics Department, Pittsburgh, USA

- Derivation of new methods for modeling interaction between fluid and poroelastic media, including new models/coupling strategies, efficient discretization techniques and design of new Finite Element spaces
- Analysis of the well-posedness of continuous models; stability and error analysis of discrete/semi-discrete models, as well as implementation of the proposed methods, using deal.II, FreeFEM++ and FEniCS scientific packages

Teaching Assistant Summer 2014 - Fall 2015
University of Pittsburgh, Mathematics Department, Pittsburgh, USA

- Analytic Geometry and Calculus 1, recitations & labs (Summer 2014)
- Business Calculus, recitations (Fall 2014)
- Analytic Geometry and Calculus 2, recitations & labs (Summer 2015)
- Introduction to Theoretical Mathematics, recitations (Fall 2015)

Senior Analyst of Mass Market Marketing April 2012 - July 2013
MegaFon, OJSC, Moscow, Russia

- Development of product strategy and launch of voice plans for B2C market and supervision of advertising campaign for several products in Moscow region

COMPUTER SKILLS

Languages & Packages : C++, Matlab, Python, deal.II, FEniCS, FreeFEM++, PETSc
Documentation: LaTeX, Microsoft Office.

PUBLICATIONS

- I. Ambartsumyan, E. Khattatov, J. Lee, I. Yotov, *"Higher order multipoint flux mixed finite element methods"*, work in progress
- I. Ambartsumyan, E. Khattatov, I. Yotov, *"Coupled multipoint flux and multipoint stress mixed finite element method for the Biot poroelasticity model"*, work in progress
- I. Ambartsumyan, E. Khattatov, I. Yotov, *"Mixed finite volume methods for linear elasticity"*, to appear in "Finite Volumes for Complex Applications VIII", Springer
- I. Ambartsumyan, V.J. Ervin, T. Nguen, I. Yotov, *"A nonlinear Biot-Stokes model for the interaction of a non-Newtonian fluid with poroelastic media, parts I & II"*, work in progress
- I. Ambartsumyan, E. Khattatov, J. Nordbotten and I. Yotov, *"A multipoint stress mixed finite element method for elasticity, parts I & II"*, preprint
- I. Ambartsumyan, E. Khattatov, I. Yotov and P. Zunino,*" A Lagrange multiplier method for a Stokes-Biot fluid-poroelastic structure interaction model"*, submitted to Numerische Matematik journal
- I. Ambartsumyan, E. Khattatov, I. Yotov and P. Zunino, *"Simulation of Flow in Fractured Poroelastic Media: A Comparison of Different Discretization Approaches"*, FDM 2014: 3-14
- I. Ambartsumyan, E. Khattatov, C. Wang and I. Yotov, *"Stochastic multiscale flux basis for Stokes- Darcy flows"*, preprint
- I. Ambartsumyan, C. He, E. Khattatov, S. Kim, L. Mrad, *"Mapping of temperatures from coarser to finer grid using temporal derivatives"*, IMA MMI XIX workshop, technical report

TALKS & POSTERS

- *"A nonlinear Biot-Stokes model for the interaction of a non-Newtonian fluid with poroelastic media"*, SIAM Computational Science and Engineering, Atlanta GA, February 2017 (talk)
- *"A multipoint stress mixed finite element method for linear elasticity"*, 8th International Conference on Porous Media, InterPORE, Cincinnati OH, May 2016 (poster)
- *"A Lagrange multiplier method for flow in fractured poroelastic media"*, Numerical Analysis and Predictibility of Fluid Motion, University of Pittsburgh, May 2016 (poster)
- *"A Lagrange multiplier method for flow in fractured poroelastic media"*, Finite Element Circus, University of Maryland, April 2016 (talk)
- *"A multipoint stress mixed finite element method for linear elasticity*, GradEXPO, University of Pittsburgh, March 2016 (poster)
- *"A multipoint stress mixed finite element method for elasticity"*, Computational Mathematics Seminar, University of Pittsburgh, December 1, 2015 (talk)