

Marianna Khanamiryan

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RESEARCH INTERESTS Numerical analysis of highly oscillatory ODEs, applied PDEs, inverse problems, compressed sensing, medical imaging, mathematical modelling, mathematical signal processing, sampling theory, numerical optimization, computational harmonic analysis

EDUCATION **University of Cambridge**
Department of Applied Mathematics and Theoretical Physics
PhD in Applied Mathematics, 2005-2010
Thesis: Numerical methods for systems of highly oscillatory ordinary differential equations
Advisor: Professor Arieh Iserles

Yerevan State University Department of Physics, Armenia
M.A. in Mathematics, with Honors, GPA 4.8/5.0, 2001-2003

Yerevan State University Department of Mathematics, Armenia
Diploma of Higher Education, with Honors, GPA 4.1/5.0, 1991-1997

RESEARCH EXPERIENCE **Stanford University**
Visiting Postdoctoral Scholar, 10/2011-12/2011
Advisor: Professor Emmanuel Candès

Helsinki University of Technology
Postdoctoral Research Fellow, 2009-present
Funded by The Academy of Finland
Advisor: Professor Olavi Nevanlinna

University of British Columbia
Visiting Postdoctoral Scholar, 12/2009
Advisor: Professor Uri M. Ascher

Katholieke University Leuven
Visiting Postdoctoral Scholar, 8/2009
Advisor: Professor S. Vandewalle

Kent University Institute of Mathematics and Statistics
Visiting Scholar, 1/2005
Funded by The Leverhulme Trust
Advisor: Professor Elizabeth Mansfield

HONORS AND AWARDS Emil Aaltonen Foundation Incentive Grant, 2011
University of Cambridge Philosophical Society Research and Travel Grants, 2007-2008
University of Cambridge Trinity College Bursary Chaired by The Prince of Wales, 2005-2008
University of Cambridge Honorary Cambridge Overseas Trusts Scholar, 2005-2008
University of Cambridge Trinity College Rouse Ball Grants, 2006-2007
European Commission Tempus Mobility Grant, 2004-2005
Yerevan State University Scholarship, 1991-1996

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| TEACHING EXPERIENCE | <p>Graduate School Instructor at Helsinki University of Technology, 2011-present</p> <p>Lectured Calculus II at Helsinki University of Technology, 2012</p> <p>Lectured Special Course in Numerical Analysis at Helsinki University of Technology, 2010</p> <p>Supervised BA Students from IIT India at Helsinki University of Technology, 2009-2010</p> <p>Vector Calculus, Undergraduate Course Assistant at Cambridge University, 2006</p> <p>Teaching Assistant at State Engineering University of Armenia, 2004-2005</p> <p>Taught Mathematics at “Hamaspur” Private High School in Armenia, 1999-2000</p> |
| JOURNAL PUBLICATIONS | <p>Khanamiryman, M., <i>Quadrature methods for highly oscillatory linear and non-linear systems of ordinary differential equations: Part I</i>. BIT Journal in Numerical Analysis, 48:4, pp. 743-761, 2008</p> <p>Khanamiryman, M., <i>Quadrature methods for highly oscillatory linear and non-linear systems of ordinary differential equations: Part II</i>. BIT Journal in Numerical Analysis, DOI:10.1007/s10543-011-0355-z, 2011</p> <p>Khanamiryman, M., <i>The Magnus method for solving oscillatory Lie-type ordinary differential equations</i>. Submitted</p> <p>Khanamiryman, M., <i>The Levin-type method for highly oscillatory systems of ordinary differential equations</i>. Submitted</p> <p>Khanamiryman, M., Nevanlinna O., and Vesanen, T., <i>Long-term behaviour of the numerical approximation using Strang splitting method for the cubic non-linear Schrödinger equation</i>. Submitted</p> |
| WORK IN PROGRESS | <p>Khanamiryman, M., <i>Efficient quadrature methods for highly oscillatory partial differential equations</i></p> <p>Collaboration with Candès, E., Stanford University, and Xing, L., Stanford University</p> <p>Collaboration with Huybrechs, D., KUL Belgium, and Ratnanather J. T., Johns Hopkins University</p> |
| PROFESSIONAL EXPERIENCE | <p>Journal Reviewer</p> <ul style="list-style-type: none"> • Applied Numerical Mathematics, published by Elsevier • International Journal of Computer Mathematics, published by Taylor & Francis |
| GRANT APPLICATIONS | <p>Seminar sessions</p> <p>Organized regular seminar sessions for Operator Theory and Numerical Analysis Group at Helsinki University of Technology. Invited speakers, maintained timetable and mailing list, delivered seminar talks</p> <p>Contributed to the N5TeAM grant application to the Nordic Council of Ministers for Nordic Master’s Degree Programme in Applied and Engineering Mathematics: http://n5team.aalto.fi/en/. Participant universities: Aalto University (coordinator), KTH, DTU, NTNU, and Chalmers. Participated at N5TeAM Board meetings and application screening, 2011-present</p> <p>Contributed to Operator Theory and Numerical Analysis Group grant applications at Helsinki University of Technology</p> |
| OTHER | <p><i>Specialist in applied mathematics</i> 2000 – 2001 HP-Info Centre of Information and Science, Government House 3, Yerevan, Armenia. Worked on a government project developing cadastral maps of Armenia</p> <p><i>Management accountant</i> 1997 – 1999 Lavanda Holding Co. Ltd. Retail Company, Yerevan, Armenia. Responsibilities: database management, providing statistical reports and analysis on financial state of the company, interviewing applicants for IT positions at the firm followed by special training for newly recruited staff</p> |

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| SELECTED TALKS | <p>2011 Stanford University Department of Statistics Seminar 2011 Foundations of Computational Mathematics FoCM 2011, Budapest (invited) 2011 Helsinki University Department of Mathematics and Statistics 2011 BioCentrum Helsinki 2010 University of Cambridge Isaac Newton Institute 2010 BIT50 Trends in Numerical Computing, Sweden 2009 University of British Columbia (invited) 2009 Katholieke University of Leuven, Belgium (invited) 2009 Workshop on Numerics in Dynamical Systems NumDyn 2009, Helsinki University of Technology 2008 5th Annual Trinity College Science Symposium, University of Cambridge 2008 Manifolds and Geometric Integration Colloquia (MaGIC), Italy (invited) 2007 Numerical Analysis Group Seminar, University of Cambridge 2007 Workshop on Time Integration of Evolution Equations, Innsbruck, Austria (invited) 2007 International Conference on Scientific Computation and Differential Equations, SciCADE2007, France (invited) 2007 Workshop on Highly Oscillatory Problems: Computation, Theory and Application, University of Cambridge Isaac Newton Institute</p> <p><i>Posters</i></p> <p>2007 Effective Computational Methods for Highly Oscillatory Problems, University of Cambridge Isaac Newton Institute 2006 Structural Dynamical Systems SDS2006, Italy</p> |
| MEMBERSHIPS | <p>Fellow of the Cambridge Association for Women in Science and Engineering Fellow of European Women in Mathematics Junior Fellow at Cambridge Isaac Newton Institute Fellow of Cambridge Philosophical Society Fellow of Trinity College MCR Peer Support Committee Founder and President of the Cambridge University Armenian Society Fellow of Cambridge Overseas Society</p> |
| PROGRAMMING | <p>Matlab, Maple, Mathematica, \LaTeX, HTML</p> |
| LANGUAGES | <p>Fluent in Armenian, English, and Russian. Finnish basic</p> |