# Curriculum Vitae Henrik Shahgholian

Henrik Shahgholian
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http://www.math.kth.se/~henriksh
Dec. 16, 1960,
Swedish
Armenian
Married (1984), two children (born 85, 89)

#### **Academic History**

#### Positions

 Jan 2001-current: Full Professor of Mathematics, KTH The Royal Institute of Technology, Stockholm, Sweden, 1998-2001

Associate Professor, KTH The Royal Institute of Technology, Stockholm

- ◆ 1991-1998: Lecturer, KTH The Royal Institute of Technology, Stockholm
- ◆ 1987-1991: Doctoral student, KTH The Royal Institute of Technology, Stockholm

#### Research

Free boundary problems, partial diff. eq., potential theory, Numerical PDE, Applied and industrial problems, Mathematical Finance, Homogenization, Stochastic partial differential equations.

#### **Publications**

- ✤ Total of 140 publications in peer reviewed international journals.
- ✤ 1 Book and 2 book-chapters

#### Honors/Awards/Grants

- Awarded honorary doctorate from Yerevan State University, April 2021.
- Swedish Institute grant for visit to Armenia Fall 2019.
- Swedish Research Council 2022-2025, (grants since 1993)
- STINT grant: collaboration with Jiao Tong Shanghai, 3 years, finishes 2019
- Knut and Alice Wallenberg Fund (postdocs H. Aleksanyan 2016-2017, S. Kim 2020-2021)
- STINT grant: collaboration with Seoul National Univ. 3 years, finished 2015
- ♦ Qatar National research Fund 2012—2016,
- Simons visiting professor MSRI, Spring 2011
- Elected foreign member of National Armenian Academy of Sciences 2008
- Letterstedtska Prize from Royal Swedish Academy of Sciences, for Brilliant Mathematics of 2008

- STINT grant for collaboration with UT, Austin, Univ. of Chicago, Purdue, 2004-2008
- ✤ ESF grant for scientific exchange 2004-2008
- The Royal Swedish Academy of Sciences for collaboration with Armenia and St. Petersburg university 2007, several years in a row
- ✤ Göran Gustafsson Foundation, grant several years in a raw
- ✤ Carl-Trygger Foundations grant 1998, 1999.

STINT: The Swedish Foundation for Int. Coop. in Research and Higher Education *MSRI: Mathematical Sciences Res. Inst. Berkeley ESF: European Science Foundation.* 

#### **Commissions/Professional services:**

- Chair of the committee for best Ph.D. thesis at KTH and Stockholm University (since 2019)
- Member of the group for reporting RAE (Research Assessment Exercise) for the year 2012 for our department. Next one 2021
- SEFI math working group at KTH 1993-1999
- Member of more than 30 Ph.D. Thesis Committees (national & international)
- Expert opinion on promotions/recruitments: More than 20 at National/International level
- Assoc. Editor of journals: Interfaces and free boundaries, Applicable Analysis, Bulletin of the Iranian Mathematical Society, Complex variables and elliptic equations (5 years)
- *Peer Review*: More than 100 peer review for various international journals.
- Member of STIN grant panel (5 years)
- ✤ Local representative for Swedish Math. Society at KTH 1992-2000

# Organizational

Scientific

- Chair of the INI-program: Nonlinear partial differential equations (Analytic and Geometric methods) 2027.
- Chair of program at Inst. Mittag-Leffler: Geometric Aspects of Nonlinear PDEs, Fall 2022.
- Chair of program at Inst. Mittag-Leffler: Random phenomena and homogenization, Fall 2014
- Chair of the INI-program: Free boundaries, Spring 2014
- Chair of the MSRI-program: Free boundary, theory and applications, Spring 2011
- Scientific leader of a thematic program *Random Phenomena in Partial Differential Equations* at Wolfgang Pauli Institute, Vienna, Year 2007
- Scientific leader of a thematic program *Nonlinear Analysis* at Wolfgang Pauli Institute, Vienna, Year 2005
- Chair of the PESC-program GLOBAL (2004-2009) for the European Science Foundation
- Member of the scientific committee for Nonlinear Potential Theory and PDE, program at Inst. Mittag-Leffler 1999-2000

# Administrative

- Head of the Graduate program at Math. division, at Math. Inst. (2012-2014)
- Head of the research group Harmonic Anal. PDE (2012-2014)
- ♦ Member of the Strategic planing group at KTH (2013-2016).

#### Teaching Undergraduate

- Teaching related Conference: Chalmers Feb. 1991, Chicago Oct.1992, Eindhoven April 1993, Prague July 95, Bratislava June 97
- Compendium: in Linear Algebra (with K. Johansson)
- Reports: 3 reports (Swedish) about computer as a tool in teaching mathematics
- Computer-courses: 40-h (fall-92) Maple in Calculus, several computer labs
- Interactive teaching: Calculus for students at IT Univ., specially designed course for students, using computer technology (2001-2002)
- Master projects: several master projects in Mathematics and Applications
- Compendium in Multivariable Calculus (for KTH students)
- Course design: Option pricing (PDE methods), Applied and Industrial Math., Biomathematics, mathematics & Sustainability.

# Graduate

I have developed more than 10 courses at KTH

 Nonlinear PDE, Crash course in Analysis, Free boundary problems, Viscosity sol. in PDE, Theory of Homogenization, Classical analysis and its application, PDE and harmonic function theory, Regularity theory for free boundaries, Methods in PDE, Obstacle problem

# Presentations

# **Invited addresses and Seminar talks**

Each year, I am on average invited to address my research internationally at various departments and also conferences. An average of 5 presentations each year in the last 30 years.

# Seminar arrangements

During my career I have organized seminars at KTH, and several series of seminars also joint with Uppsala and Stockholm Univ.

- ✤ Uppsala-KTH PDE
- Finance seminars (joint with Uppsala University) 2006-2010
- PDE & application seminars joint with Uppsala University, 2006-2009
- ✤ Analysis and its applications 2003-2006
- Potential Analysis seminar 1989-2002

# International conference/workshop arrangements

I have been either a main organizer or a member of the organizing committee of over 50 conferences/ workshops worldwide. Here are some of them.

- ✤ KTH-Jiatong meeting 2017, 2018.
- Swedish Summer PDE, 2019
- Free Boundary Problems, Theory and Applications: 2012 (Chiemsee), 2014 (Cambridge), 2017 (Shanghai), 2022 (Berlin), 2024 (João Pessoa, Brazil)
- Workshop on Stochastic and PDE Methods in Financial Mathematics September 7-12, 2012, Yerevan, Armenia

- Nordic-Russian Symposium in Honor of Vladimir Maz'ya, 25--27 August 2008
- Summer School: Nonlinear analysis and Geometric PDE, Armenia, June 2008
- Free Boundary Problems, Theory and Applications, June 13-20 2008, KTH, Stockholm (Head organizer with over 120 participants)
- ♦ Workshop on PDE & Biology , July 9-11, 2007 KTH, Stockholm
- ◆ 2nd workshop on PDE and Finance , August 20-23, 2007 KTH, Stockholm
- Potential Theory and Applications, A conference in honor of Björn Gustafsson's 60th birthday. October 15-17 2007. KTH, Stockholm
- Rolf Schock Prize meeting, Stockholm October 2005
- PDE and Mathematical Finance, Stockholm, August 2005
- Classics in PDE, Stockholm, June 2005
- ✤ International Workshop on Nonlinear PDE, IPM, Teheran, Dec. 5-16, 2004
- ✤ Global and Geometric Aspects in Nonlinear PDE, Armenia, October 6-12, 2004
- ♦ Geometric and Global Properties in PDE with applications, Stockholm, June 2003
- Mathematics in Armenia (Sept. 2003, Yerevan)
- ✤ Geometric aspects in PDE (June 2003 in Stockholm)
- ✤ Nonlinear PDE (Jan 2003, Lisbon)
- Workshop in Nonlinear Analysis (May 2002, Schrödinger Inst.)
- ♦ Workshop on regularity of free boundaries, Stockholm Feb. 2000
- Workshop on irregular free boundaries, Stockholm 23-26 May 1996
- One-day conference in honor of H.S. Shapiro May 14, 1993

### Visiting Positions

- ✤ YSU 2 months (2022, 2023)
- ✤ AUA (Spring 2018, Fall 2019)
- Imperial College, London Spring 2017
- Isaac Newton Inst. Spring 2014
- Mathematical Research Inst. Berkeley, Spring 2011
- Petroleum Inst. (Abu-Dhabi) Spring 2009
- Univ. of Nancy Inst. Henri Poincare July 2000
- Univ. of California Santa Barbara, Spring 99
- Univ of Tehran, July-August 98
- Univ. of Texas at Austin, Jan-May 1998
- ✤ IPM research center, Feb.-May , 1996
- Univ. of Franche-Comte, Besancon, France, June 95
- IPM research center, Tehran, July-Aug, 94

# Mentorship

#### **Doctoral Students**

- ✤ Rada Ziganshina (started 2023—)
- ✤ J. Roos (finished 2016) Co-advisor.
- ✤ A. Minne (finished 2016)

- ✤ M. Strömqvist (finished 2014)
- S. Sajadini (finished 2013)
- ✤ M. Bazarganzadeh (finished 2012)
- ✤ A. Arakelyan (finished 2011)
- ✤ A. Edquist (finished 2010)
- F. Bozorgnia (finished 2009)
- E. Lindgren (finished 2009)
- ✤ J. Andersson (finished 2005)
- ✤ A. Karakhanyan (finished 2004)
- ✤ N. Matevosyan (finished 2003)
- T. Arnarson (finished 2003)
- ✤ A. Petrosyan (finished 2000)

### Postdocs

Seongmin Jeon (2021-2022) Sunghan Kim (2020-2021 2 years) Hayk Aleksanyan (2016-2017) Karen Yeressian (2014, 2016) Asadollah Aghajani (2013, 5 months) Morteza Fotouhi (2018, 6 months) Outi Elina Maasalo (Kansanen) 2010

### Master and Bachelor level

7 ex. of master students, the theses can be found at <u>https://people.kth.se/~henriksh/Shahgholian/Examensarbete/Entries/</u>2010/10/10\_Masterexamensarbete.html

4 ex. of Bachelor degree theses can be found at: <u>https://people.kth.se/~henriksh/Shahgholian/Examensarbete/Entries/2010/10/10\_Entry\_2.html</u>