

Curriculum Vitae

Tuomas Sahlsten

September 25, 2018

General information

Personal information

Family name and first names: Sahlsten, Tuomas Valtteri Aleksis
Date and place of birth: 25 May 1987 in Vantaa, Finland
Nationality: Finnish
Group website: <http://sahlsten.org>

Education

2009 – 2012 *PhD in Mathematics*, University of Helsinki, Finland
Supervisor: Prof Pertti Mattila. Awarded: November 2012.
2006 – 2009 *BSc and MSc in Mathematics*, University of Helsinki, Finland
Supervisor: Prof Pertti Mattila. Awarded: June 2009.

Work experience

Sep 2017 – present *Lecturer in Pure Mathematics*, School of Mathematics, University of Manchester, UK, permanent contract
Sep 2015 – Aug 2017 *Marie Curie Research Fellow*, School of Mathematics, University of Bristol, UK (funded by the EU through MSCA-IF grant, Horizon 2020)
Jan 2014 – Aug 2015 *Research Fellow*, Einstein Institute of Mathematics, The Hebrew University of Jerusalem, Israel (fellowship in an ERC starting grant, FP7)
Jan 2013 – Dec 2013 *Research Associate*, School of Mathematics, University of Bristol, UK (funded by an Emil Aaltonen foundation grant and Academy of Finland)
Sep 2012 – Dec 2012 *Project Researcher*, Department of Mathematical Sciences, University of Oulu, Finland (fellowship in an Academy of Finland grant)

Research experience

Research record and interests

- In total 14 peer-reviewed published articles with many appeared in leading international mathematical journals such as Duke Math. J., Math. Ann., Proc. LMS, Analysis & PDE, IMRN, Adv. Math. and others. Detailed list of publications available on arXiv:

https://arxiv.org/a/sahlsten_t_1.html

- The general theme of the past research after finishing the PhD has been on applications of dynamical systems in various branches of pure mathematics such as harmonic analysis, geometric measure theory and Diophantine approximation.
- In my current work I am involved in projects aimed to develop Fractal Uncertainty Principle and Quantum Chaos in arithmetic and general negatively curved Riemannian manifolds building on the recent works with T. Jordan (Math. Ann. 2016) and E. Le Masson (Duke Math. J. 2017).

Grants (as a P.I.)

- 1.9.2015 – 31.8.2017 *Marie Skłodowska-Curie Actions*, European Union, awarded a €183,455 MSCA-IF Grant “*Large Deviations and Measure Rigidity in Dynamics*” (LDMRD), nr. 655310, under the Horizon 2020 Programme. Hosted by University of Bristol, UK.
- 1.1.2010 – 31.12.2013 *Emil Aaltonen Foundation*, Finland, awarded three (€22,300, €23,000 and €23,000) research grants. Hosted by the University of Helsinki, Finland (1.1.2010 - 30.8.2012), and University of Bristol, UK (1.1.2013 – 31.12.2013)

Hosted fellowships

- 1.7.2018 – 31.12.2018 Hosted Dr Clifford Gilmore’s project on “*Applications of Linear Dynamics in Ergodicity and Quantum Ergodicity*” in the University of Manchester, UK. Funded by a postdoctoral grant (€13,000) obtained by Clifford from *Magnus Ehrnrooth Foundation*, Finland.

Smaller grants

- 2017 *LMS Scheme 1 and Imperial College London* conference grants (total £8,000) with Davoud Cheraghi
- 2017 *Finnish Academy of Science and Letters* travel grant (€1174)
- 2014 *LMS Scheme 1* grant (£4,000) and *Heilbronn Institute* grant (£4,000) with Thomas Jordan
- 2013 *Chancellor’s travel grant* (€772), University of Helsinki, Finland

Research supervision/examination

- Postdocs Currently hosting until Dec 2018 Magnus Ehrnrooth Research Fellowship for Dr Clifford Gilmore in the University of Manchester on coarse quantum chaos.
- PhD students Currently supervising 4 PhD students in the University of Manchester.
 - Main supervisor for Mr Connor Stevens (2017–) and Mr Joe Thomas (2018–) both working on dynamical systems, quantum chaos, number theory and additive combinatorics.
 - Co-supervising Mr Borys Kuca (2018–) with Sean Prendiville on additive combinatorics and Mr Clément Hege (2018–) with Nikita Sidorov on dynamical systems.
- PhD examination Examined Dr Eino Rossi’s PhD thesis in 2017 on dynamical systems and fractal geometry at the University of Helsinki, Finland

Professional and organisational activities

- Co-organised the international conference *Analysis Aspects of Dynamics*, held in 16 – 18. May 2018 at the Imperial College London, UK.
- Co-organised the international conference *Projection and Slicing Theorems in Fractal Geometry*, held in 17 – 18. July 2014 at the University of Bristol, UK.

- Local organiser in Michael Hochman's *Workshop on Fractals*, held in 8 – 12. June 2014 at the Hebrew University of Jerusalem, Israel.
- Reviewer for major international journals such as *GAFSA*, *Proc. London Math. Soc.*, *Adv. Math.*, *Trans. Amer. Math. Soc.* and various others
- Elected vice member of the Board of the Department of Mathematics and Statistics at University of Helsinki during the period Jan 2010 - Jun 2012.

Selected research visits

Nov 2018	<i>Alfréd Rényi Institute of Mathematics</i> , Budapest, Hungary
Sep 2018	<i>University of Warwick</i> , England
Apr 2018	<i>University of Bristol</i> , England
May 2017	<i>Torcuato di Tella University</i> , Buenos Aires, Argentina
May 2017	<i>Pontifical Catholic University of Chile</i> , Santiago de Chile, Chile
May 2016	<i>Princeton University</i> , New Jersey, USA
Feb 2016	<i>Brown University</i> , Rhode Island, USA
Apr 2015	<i>University of Manchester</i> , England
Sep 2014	<i>The Chinese University of Hong Kong</i> , China (SAR)
Aug 2014	<i>South China University of Technology</i> , Guangzhou, China
Dec 2013	<i>University of York</i> , England
Oct 2013	<i>University of Warwick</i> , England
May 2013	<i>Université Paris Diderot</i> , France
May 2013	<i>Leiden University</i> , Netherlands
Apr 2013	<i>University of Surrey</i> , England
Jan 2010	<i>University of St. Andrews</i> , Scotland

Selected invited talks in international conferences

September 2017	<i>Fractal Geometry and Dynamics</i> , Mittag-Leffler Institute, Sweden
March 2016	<i>27th Nordic Congress of Mathematicians</i> , Stockholm University, Sweden
January 2016	<i>Finnish Mathematical Days</i> , University of Turku, Finland
June 2015	<i>Workshop on Fractals</i> , The Hebrew University of Jerusalem, Israel
July 2014	<i>Dynamics and Numbers</i> , The Max Planck Institute, Bonn, Germany
August 2013	<i>XXII Rolf Nevanlinna Colloquium</i> , University of Helsinki, Finland

Selected invited seminars/colloquia

University of Edinburgh (2018), Pontifical Catholic University of Chile (2017), Princeton University, USA (2016), Imperial College London (2016), University of St Andrews (2010, 2015), University of Helsinki (2015), South China University of Technology (2014), Chinese University of Hong Kong (2014), Technion, Israel (2014), The Hebrew University of Jerusalem (2014), University of York (2013), University of Warwick (2013), Université Paris Diderot-Paris 7 (2013), Leiden University (2013).

Teaching experience

Supervisions and examination

- Sep 2017 – Academic advisor for 27 under- and postgraduate students in University of Manchester, UK

Sep 2017 – Supervisor and examiner for MSc and MMath projects and dissertations on mathematical analysis, number theory and dynamics, University of Manchester, UK

Lecturing experience

2019 *Analysis, Random Walks and Groups*, designed a new 4th year undergraduate course University of Manchester, UK
 2018-2019 *Mathematics 0C2*, foundation year course on calculus, University of Manchester, UK
 2016 *Additive Combinatorics and Ergodic Methods in Fractals*, graduate course, University of Bristol, UK

Teaching experience in schools

Fall 2007 *Mathematical analysis*, course teacher, Jokela high school, Finland
 Fall 2007 *Geometry*, course teacher, Jokela high school, Finland
 Fall 2007 *A-level preparation course*, course teacher, Jokela high school, Finland
 Fall 2007 *Basic mathematics*, course teacher, Mantsälä upper secondary school, Finland.

Small group tutorials

Sep 2017 – Leading first year supervision groups for undergraduate students, University of Manchester, UK
 Sep 2009 – Dec 2012 Leading various undergraduate supervision groups, University of Helsinki, Finland

Pedagogical studies

2017 – 2019 New Academics Programme training courses on University Pedagogics, University of Manchester, UK
 2011 University Pedagogics training, University of Helsinki, Finland

Outreach

Public engagement

- Active series of YouTube videos on being a researcher and a mathematician, channel link:
<https://tinyurl.com/TuomasSahlstenYouTube>
- Currently in making YouTube videos for the Alan Turing Cryptography Competition on Number Theory and Cryptography in the University of Manchester:
http://www.maths.manchester.ac.uk/cryptography_competition/