Ash Lightfoot   Curriculum Vitae

CONTACT INFORMATION	Faculty of Mathematics Higher School of Economics Office 309 Usacheva str., 6 Moscow, Russia 119048	Email: alightfoot@hse.ru Web: www.ashlightfoot.com Ph: (+7) 925-889-7129

RESEARCH INTERESTS

Low dimensional topology, knot theory, knotted surfaces in four-dimensional space, surface braids, finite type invariants, generalized link homotopy, obstruction theory for embedding surfaces in four-manifolds

EDUCATION

Indiana University, Bloomington, IN, USA   CITIZENSHIP: New Zealand

- Ph.D. Mathematics, 2016
  - Dissertation topic: "Secondary invariants of link homotopy in dimension four"
  - Advisor: Paul Kirk

University of Canterbury, Christchurch, New Zealand

- M.Sc. (with Distinction), Mathematics, 2009
  - Thesis title: "Embeddable spherical circle planes"
  - Advisor: Günter Steinke
- B.Sc. Hons. (1$^{\text{st}}$ class), Mathematics, 2008

EMPLOYMENT

- Post-doctoral research fellow (September 2016 - Present)
  NRU Higher School of Economics, Moscow, Russia

PUBLICATIONS

- *Detecting Whitney disks for link maps in the four-sphere.* J. Knot Theory Ramifications, **26** (12) (2017)

- *On invariants of link maps in dimension four.* J. Knot Theory Ramifications, **25** (11) (2016)

PREPRINTS

- *Chart diagrams and two-dimensional link homotopy* (in preparation)

- *The Schneiderman-Teichner invariant applied to immersions arising from link maps in S^4.* Preprint, December 2013,
  arXiv:1312.1936v2 [math.GT].

SELECTED INVITED TALKS

- *International Conference: Geometry Days in Novosibirsk*, Sobolev Institute of Mathematics, September 2017

- *4th Russian-Chinese Conference on Knot Theory and Related Topics*, Bauman Moscow State Technical University, July 2017

- *Combinatorics of Vassiliev Invariants Seminar*, Higher School of Economics, March 2017

- *Knots and Representation Theory Seminar*, Moscow State University, February 2017

- *Algebraic Topology and its Applications Seminar. Postnikov Memorial Seminar.*, Moscow State University, February 2017

- *Geometric Topology Seminar*, Steklov Mathematical Institute, February 2017

- *Characteristic Classes and Intersection Theory Seminar*, Higher School of Economics, October 2016

- *CUNY Geometry and Topology Seminar*, City University of New York, March 2016

- *Georgia Tech Topology Conference ("Lightning talk")*, Georgia Institute of Technology, December 2015

- *Workshop in Geometric Topology*, Texas Christian University, June 2015

- *Graduate Student Conference in Algebra, Geometry, and Topology*, Temple University, May 2015

- *Graduate Student Geometry & Topology Conference*, University of Texas, Austin, April 2014

- *Graduate Student Geometry & Topology Conference*, University of Notre Dame, April 2013

ORGANIZATIONAL EXPERIENCE

- **Seminar organizer** (September 2017 - Present)
  with S. Melikhov, P. Akhmetev, E. Shchepin

  Geometric Topology Seminar
  NRU Higher School of Economics, Moscow
  http://www.mathnet.ru/php/conference.phtml?confid=192

- **Seminar organizer** (September 2017 - Present)
  with C. Brav

  Topics in Low-Dimensional Topology and Algebraic Geometry
  NRU Higher School of Economics, Moscow
  https://math.hse.ru/lowdimtop/

- **Conference co-organizer**

  Fourteenth Annual Graduate Student Topology Conference, Indiana University, April 2016

- **Conference co-organizer**

  Tenth Annual Graduate Student Topology Conference, Indiana University, April 2012

TEACHING EXPERIENCE	NRU Higher School of Economics, Moscow, Russia

- **Lecturer**
  - ○ *Low-dimensional topology and algebraic geometry* (August 2017-present)

- **Project supervisor**
  - ○ *Undergraduate reading course* (August 2016-present)
  - ○ *Undergraduate research project (REU)* (Summer 2016)

- **Examiner (oral assessment)**
  - ○ *First-year Algebra, Analysis, Logic, Geometry* (August 2017-present)

Indiana University, Bloomington, IN, USA

- **Lecturer**
  - ○ *Public speaking for students interested in mathematics* (2015-2016)
  - ○ *Finite mathematics* (2013-2015)
  - ○ *Intuitive Topology* (as substitute) (2015)
  - ○ *Preparation for the GRE* (2014)
  - ○ *Graduate Topology* (as substitute) (2012)
  - ○ *Precalculus with Trigonometry* (2011-2012)

- **Tutor**, *Math Learning Center* (2010, 2011)

OUTREACH

- **Math Circle Leader** (March 2017 - Present)
  with Alexander Spivak[1]

  Topology and English Lessons
  (viewable online, intended for students all over Russia)
  DNTTM[2], Moscow
  https://www.youtube.com/playlist?list=PL1JJ1jVZ9z5DvlJJG8hveWwiD-6OiXq6q

- **Math Circle co-organizer and speaker**
  Bloomington Math Circle, Indiana University (2015 - 2016)

- **Mentor**
  Directed Reading Program, Indiana University (2015)

PROFESSIONAL SERVICE

- **Reviewer**
  Zentralblatt MATH (zbMATH)
  https://zbmath.org/?q=ash+lightfoot

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[2] An elementary school in Moscow, http://www.dnttm.su

HONORS AND   Indiana University,
AWARDS
- Glenn Schober Memorial Travel Award, 2016
- College of Science Travel Award, 2015
- Rothrock Teaching Award, 2014

New Zealand Ministry of Research, Science and Technology,
- Fulbright Graduate Award, 2009

University of Canterbury,
- Lord Rutherford Memorial Scholarship, 2009
- Tuition scholarships, Mathematics, 2009, 2008, 2007
- Cook Memorial Prize, 2009
- Page Memorial Prize, 2008
- Gordon Petersen Memorial Prize, 2007

REFEREES FOR RESEARCH

- Paul Kirk, Professor of mathematics (Indiana University, USA)
- Charles Livingston, Professor of mathematics (Indiana University, USA)
- Robert Schneiderman, Associate professor of mathematics (Lehman College, City University of New York)
- Seiichi Kamada, Professor of mathematics (Osaka City University, Japan)
- Sergey Melikhov, Senior Scientific Researcher (Steklov Mathematical Institute, Moscow, Russia)

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 Computer Science
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Bronx, NY 10468, USA
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Sergey Melikhov
Geometry and Topology
Steklov Math. Institute
Moscow 119991, Russia
melikhov@mi.ras.ru

Seiichi Kamada
Dept. of Mathematics
Osaka City University
Osaka 558-8585, Japan
skamada@sci.osaka-cu.ac.jp

REFEREES FOR TEACHING

- Dr. Stephen McKinley, Senior Lecturer, Academic Coordinator & Assistant to the Chair of Mathematics (Indiana University)
- Dr. Andrew Dabrowski, Senior Lecturer of Mathematics (Indiana University)
  - Co-organizer of the *Bloomington Math Circle*.

- Dr. Cynthia Smith, Senior Lecturer of Communication and Culture (Indiana University)
    - Course coordinator of *Public Oral Communication.*

- Chris Parks, Director of the Math Learning Center (Indiana University)

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