

Curriculum Vitae

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Education

- Department of Mathematics, Seoul National University, B.S. in Mathematics (1982-1985)
- Department of Mathematics, Yale University, Ph.D. in Mathematics (1985-1990)

Employment

Regular:

- Professor of Number Theory (RSIV) and Fellow of Merton College, University of Oxford (2011-)
- Yun San Chair Professor, Pohang University of Science and Technology (2010-2012, Fall terms)
- Chair of Pure Mathematics, University College London (2007- 2011)
- Professor, Purdue University (2005-2007)
- Professor, Korea Institute for Advanced Study (2001-2002)
- Assistant Professor, Associate Professor, and Professor, University of Arizona (1995-2005)
- Assistant Professor, Columbia University (1993-1995)
- C. L. E. Moore Instructor, Massachusetts Institute of Technology (1990-1993)

Visiting:

- Distinguished Visiting Chair, Ewha Womans University (2015-)
- Distinguished Visiting Chair, Seoul National University (2013-2015).
- KIAS scholar, Korea Institute for Advanced Study, Seoul Korea (2007-2010)
- Visiting Professor, Research Institute for Mathematical Sciences, Kyoto, Japan, (2006)
- Visiting Member, Institut des Hautes Études Scientifiques, France (2003, 2004, 2006, 2009)
- Visiting Member, Max-Planck-Institut für Mathematik, Bonn, Germany (2002, 2005)
- Visiting Professor, University of Illinois at Urbana-Champaign (2004)
- Visiting Professor, Université de Paris-Sud, Orsay, France (2003)
- Visiting Professor, Department of Mathematics, University of Toronto (2002)

Academic Distinctions

- Ho-Am Prize in Science from the Samsung Foundation (2012).
- Elected to MSRI Eisenbud Professorship, U.C. Berkeley (2014, declined for personal reasons).

Research Grants

- EPSRC grant 'Symmetries and Correspondences' with six other researchers from Oxford, Nottingham, NYU, and IPMU Japan for 2.3M GBP. May, 2015-.
- EPSRC grant, EP/G024979/1 for 359K GBP: 'Non-commutative fundamental groups in Diophantine geometry,' March, 2009-2013.
- EPSRC grant, 46437: Workshop 'Non-commutative constructions in arithmetic and geometry,' June, 2008.
- Japan Society for the Promotion of Science, Core-to-Core program: 'New Developments of Arithmetic Geometry, Motive, Galois Theory, and Their Practical Applications,' Foreign member, April, 2006-March, 2008.
- NSF grant DMS-0500504, 2005-2008: 'Motivic fundamental groups, multiple polylogarithms, and Diophantine geometry'.

- NSF Infrastructure grant 2003-2006: ‘Southwestern Center for Arithmetic Geometry’, Co-PI.
- NSF Infrastructure Grant 1998-2002: ‘Southwestern Center for Arithmetic Geometry’, Co-PI.
- NSF grant DMS-9701489, 1997-2001: ‘Effective Diophantine Geometry over Function Fields’.
- United States National Science Foundation (NSF), grant DMS-9106444, 1991-1993.

Some recent scholarly presentations

Plenary Lectures:

- Plenary lecture at the Meeting of the American Mathematical Society, 2009.
- Plenary lecture at conference on algebraic and arithmetic geometry, Essen, February, 2010.
- Plenary lecture at the XII meeting of the Canadian Number Theory Association, 2012.
- Plenary lecture at the Asian Mathematical Conference, July 2013.
- Plenary lecture at Bridges Conference on Mathematics, Music, Art, Architecture, Culture, August, 2014
- Plenary lecture at the Algorithmic Number Theory Symposium XI, August, 2014
- Plenary lecture at the SIAM conference on applied algebraic geometry, July, 2015

Colloquia:

- Rice University, May, 2005.
- University of Western Ontario, October 2005.
- Hong Kong University, November, 2006.
- Hong Kong Geometry Colloquium, November, 2006.
- Queen Mary University of London, November, 2007.
- University of Leeds, January, 2008.
- University of Durham, February, 2008.
- University of Exeter, March, 2008.
- Kings College, London, March 2008.
- University of Lille, November, 2008.
- Pure Math Seminar, University of Leicester, October, 2009.
- Pure Math Seminar, University of Sheffield, November, 2009.
- British Mathematical Colloquium, Morning Speaker, April 2011.

Conferences:

- Workshop on non-commutative geometry and number theory, MPIM, Bonn, Germany, June 2004.
- Workshop on arithmetical algebraic geometry, Oberwolfach, Germany, August, 2004.
- Mid-west model theory meeting, Urbana, Illinois, December, 2004.
- Arbeitsstagung, Bonn, June 2005.
- Conference in honor of John Coates’s 60th birthday, Morningside Institute, Chinese Academy of Science, Beijing, China, August, 2005.
- Mid-west Number Theory Days, Madison, Wisconsin, November, 2005.
- American Mathematical Society-Taiwan Mathematical Society joint meeting, Taichung, Taiwan, December, 2005.
- Mathematical Science Research Institute workshop, ‘cohomological approaches to rational points,’ Berkeley, CA, March, 2006.
- Fourth annual Spring institute on non-commutative geometry and operator algebras, Vanderbilt University, May, 2006.
- Research Institute for Mathematical Sciences, International conference on arithmetic geometry, Kyoto, Japan, September, 2006.
- Kinosaki symposium on algebraic geometry, Kinosaki, Japan, October 2006.
- Workshop on arithmetic geometry, Tata Institute for Fundamental Research, NCBS Conference Centre, Bangalore, India, March, 2008.
- Symposium on rational points on curves and higher dimensional varieties, Warwick, June, 2008.

- Workshop on Arithmetic Geometry: Diophantine approximation and Arakelov theory, Fields Institute, Toronto, October, 2008.
- Workshop on finiteness for motives and motivic cohomology, Regensburg, February, 2009.
- Workshop on geometry and arithmetic around Galois theory, Istanbul, June, 2009.
- Durham Symposium on ‘New directions in the model theory of fields,’ Durham, July, 2009.
- Conference on the arithmetic of fundamental groups, Heidelberg, February, 2010
- ETH Zuerich and EPF Lausanne Number Theory Days, Zürich, April, 2010.
- ICM Satellite conference on Galois representations, Goa, August, 2010.
- Seoul-Tokyo conference on arithmetic and algebraic geometry, Korea Institute for Advanced Study, November, 2010.
- Research workshop on the conjecture of Birch and Swinnerton-Dyer, Royal Society Kavli Center, April, 2011.
- Workshop on the motivic fundamental group, Lorentz Center, Leiden, April, 2011.
- Conference on Galois representations and arithmetic geometry, in honor of Sir Martin Taylor’s 60th birthday, Bordeaux, July, 2012.
- Pacific Northwest Number Theory Conference, Vancouver, May, 2014.
- Workshop on Multiple Zeta Values, Modular Forms and Elliptic Motives, Madrid, December, 2014.
- Conference in honour of the 70th birthday of John Coates, Cambridge, March, 2015.
- Conference in memory of Robert Coleman, May, 2015.

Lecture series:

- Lectures on the non-abelian method of Chabauty, Banff International Research Station, Banff, Canada, February, 2007.
- Lectures on pro-unipotent fundamental groups at McGill University’s Bellairs Workshop in Number Theory, Barbados, April, 2012.
- Cours d’Arithmétique et de Géométrie Algébrique* sponsored by the Fondation Mathématique Jacques Hadamard and the Institut des Hautes Études Scientifiques, Paris, France, February, 2012.
- Distinguished Visiting Speaker of the Pacific Institute for Mathematical Sciences, June, 2014.

Seminars:

- Columbia-CUNY-NYU number theory seminar, October, 2004.
- Number theory seminar, U.C. Berkeley, May, 2005.
- Algebraic geometry seminar, University of Michigan, November, 2005.
- Number theory seminar, Tokyo University, October, 2006.
- Arithmetic geometry seminar, Université de Paris-Sud, October, 2007.
- London-Paris number theory seminar, Henri Poincaré Institute, Paris, November, 2007.
- Arithmetic geometry seminar, Strasbourg, February, 2008.
- Number theory seminar, University of Cambridge, November, 2008.
- Arithmetic geometry seminar, University of Heidelberg, April, 2009.
- Algebra seminar, University of Pennsylvania, April, 2009.
- Number theory seminar, University of Paris VI, November, 2009.
- Seminar on quantum groups, non-commutative geometry, and algebraic model theory, Queen Mary University of London, February, 2011.
- Number Theory Seminar, University of Warwick, March 2013.

Some recent professional activity

- Editor-in-chief, Monographs in Mathematics, Springer-Verlag
- Editorial Board, Research in Number Theory, 2015–.
- Seminar organizer, conference on algebraic geometry, Salt Lake City, Utah, July, 2015.
- Member of organizing committee for the International Congress of Mathematicians 2014.
- Editorial advisor, Bulletin, Journal, and Proceedings of the London Mathematical Society, 2013–2014.

- Member of scientific committee, Korean Mathematical Society, 2013–
- Member of board, International Centre for Mathematical Sciences, Edinburgh, 2012–.
- Member of governing body, Merton College, Oxford, 2012–.
- Co-organizer of the Durham Mathematical Symposium, ‘Automorphic Forms and Galois Representations,’ July, 2011.
- Member of scientific committee for multi-national conference series on Pan-Asian Number Theory, 2009–.
- Co-organizer for five-month program on ‘Non-abelian fundamental groups in arithmetic geometry,’ Newton Institute for Mathematical Sciences, July–December, 2009.
- Co-organizer for London-Paris number theory seminar, 2008–2011.
- Member of Editorial Board, *Mathematika* (2007–).
- Co-organizer for Asian-French summer school on algebraic geometry and number theory: Motives and related topics, Institut des Hautes Études Scientifiques, France, July, 2006.
- United States National Science Foundation, Division of Mathematical Sciences, member of review panel on algebraic geometry, 2006.

Knowledge transfer activities

Educational outreach:

–Collaboration with Interpark Incorporated, Korea, on the K.A.O.S. Public ‘Talk Concert’ Series. So far, we have organized and hosted four events at various venues in Seoul from Fall 2102 to Spring 2014 on the interconnection between mathematics and economics, physics, and music.

–Joint project with the teaching curator of the Ashmolean Museum at Oxford on mathematics and the arts (in progress).

Technological collaboration:

–Collaboration with the team of Karthik Ramani, Electrical and Mechanical Engineering at Purdue, on geometric methods in shape recognition algorithms. This has so far resulted in a publication in a high impact engineering conference proceedings with Yi Fang , Mengtian Sun , and Karthik Ramani, ‘Heat-Mapping: A Robust Approach Toward Perceptually Consistent Mesh Segmentation, IEEE Computer Vision and Pattern Recognition (CVPR), pp 2145-2152, 2011.’

Media:

-Interviewed by New York Times (17 September, 2012), Science Magazine (12 September, 2012), New Scientist (15 September, 2012), New Zealand Public Radio (25 October, 2012), Boston Globe (4, November, 2012).

-Numerous interviews by South Korean media outlets, including Chosun Daily, Joongang Daily, Donga Daily, and Korean Broadcasting System (14 January, 2014).