

Vinoth Nandakumar

Department of Mathematics
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Citizenship: Australian

Education & Employment

University of Utah

Salt Lake City, Utah

Scott Assistant Professor Lecturer (post-doctoral position)

Massachusetts Institute of Technology

Cambridge, MA

Ph.D. In Mathematics.

Advisor: Prof. Roman Bezrukavnikov

9/2010 – 5/2015

Thesis title: "Coherent sheaves on varieties arising in Springer theory, and category O "

University of Sydney

Sydney, Australia

Bachelor of Science (Advanced Mathematics), with Honours Class 1, and the University Medal

Thesis supervised by Anthony Henderson

Essay title: "Nilpotent cones"

2/2008-7/2010

Research Interests

Representation theory: Springer theory, categorification, Quantum Groups, Category O

Selected Awards

Norbert Quirk Prize No. IV (for the best Honours essay), 2010

Dean's Scholarship in Science, 2010

Barker Prize for proficiency in the Honours examinations, 2010

University Medal, 2010

David Jackson Prize for "creativity and originality in Pure Maths by an undergraduate", 2009

George Allen Scholarship in Pure Mathematics (for proficiency in Senior Mathematics and Statistics courses), 2009

Norbert Quirk Prize No. 2 (for the best entry by a second year student), 2009

Norbert Quirk Prize No. 1 (for the best entry by a first year student), 2008

The University of Sydney Undergraduate Scholarship, 2008

International Maths Olympiad, Bronze Medal, 2006

International Maths Olympiad, Bronze Medal, 2005

Papers

1. *Equivariant coherent sheaves on the exotic nilpotent cone*, arXiv.org:1203.5364

Represent. Theory 17 (2013), 663-681

2. *Exotic t -structures for two-block Springer fibers* (with Rina Anno), available on website

3. *Quiver varieties and the $B(\infty)$ crystal in non-symmetric type* (with Peter Tingley), available on website
4. *Stability conditions for sub-quotients of category O* , available on website

Invited Talks

- 1/15, University of Sydney Algebra Seminar, "Stability conditions for sub-quotients of category O "
- 12/14, Columbia 'Symplectic Geometry, Gauge Theory, and Categorification' seminar,
"Exotic t-structures for two-block Springer fibers"
- 10/14, Northeastern Representation Theory Seminar, "Exotic t-structures for two-block Springer fibers"
- 04/13, MIT Graduate Student Seminar, "A geometric construction of RSK correspondence in type A " (expository)
- 11/12, Loyola University Algebra & Combinatorics Seminar, "Quiver varieties and the $B(\infty)$ crystal in non-symmetric type"
- 10/12, Northeastern Graduate Student Seminar, "Quiver varieties and the $B(\infty)$ crystal in non-symmetric type"
- 09/12, MIT Inf. Dim. Alg. Seminar, "Exotic t-structures for two-block Springer fibres"
- 03/12, MIT Lie Groups Seminar, "Equivariant coherent sheaves on the exotic nilpotent cone"
- 07/12, University of Sydney Algebra Seminar, "Exotic t-structures for two-block Springer fibres"
- 04/11, MIT Quantum Groups Learning Seminar, "Gelfand-Tsetlin bases and crystals" (expository)
- 12/11, MIT Cluster algebras and Categorification Learning Seminar,
"Cluster algebras, and representations of quantum affine algebras" (expository)

Conferences Attended

- 30/4 – 4/5, 2012, Geometry of derived categories and representation theory, Northeastern University
- 12/5 – 17/5, 2012, Perspectives in Representation Theory, celebrating the 60th birthday of Igor Frenkel, Yale University
- 13/8 – 17/8, 2012, Categorical Representation Theory, University of Oregon
- 4/1 – 9/1, 2013, Algebraic Groups and Representation Theory: A conference in memorial of Tony Springer, University of Hong Kong
- 18/3 – 22/3, 2013, Soergel Bimodules and Kazhdan-Lusztig Conjectures, Masterclass, Aarhus University, Denmark
- 19/5 – 23/5, 2014, Representations of reductive groups: A conference dedicated to David Vogan on his 60th birthday, MIT
- 9/6 – 13/6, 2014, Categorification and Geometric Representation Theory, Centre de Recherches Mathematiques, Montreal
- 4/8 – 8/8, 2014, Kazhdan-Lusztig Theory and Soergel bimodules, University of Oregon

Teaching

- Spring 2013 MIT, 18.06 Linear Algebra (recitation leader)
- Fall 2012 MIT, 18.01A/18.02A Calculus & Linear Algebra (recitation leader)
- Spring 2012 MIT, 18.706 Noncommutative Algebra (grader)
- Fall 2011 MIT & Spring 2014 MIT, 18.085 Computational Science and Engineering (grader),
- January 2012, Mentor in the MIT IAP Directed Reading Program

2012 – 2013, Mentor in the MIT program “PRIMES”

Instructor at Australian IMO Training Camps (April 2009, 2010)