

Vinoth Nandakumar

School of Mathematics and Statistics
University of Sydney, NSW, 2006
Australia

Webpage: maths.usyd.edu.au/u/vinoth/
Email: vinoth.nandakumar@sydney.edu.au
Citizenship: Australian

Education & Employment

University of Sydney

Research Fellow (post-doctoral position) 6/2016-present

University of Utah

Scott Assistant Professor Lecturer (post-doctoral position) Salt Lake City, Utah
9/2015-5/2016

Massachusetts Institute of Technology

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: categorification, modular representations of Lie algebras, Springer theory, quantum groups, category O

Selected Awards

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

University Medal, 2010

International Mathematical Olympiad, Bronze Medal, 2005 & 2006

Papers

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

Represent. Theory 17 (2013), pp. 663-681

2. *Stability conditions for sub-quotients of category O* , arXiv:1511.08487

Int. Math. Res. Not. (2016), No. 00, pp. 1–33

3. *Quiver varieties and the $B(\infty)$ crystal in non-symmetric type* (with Peter Tingley), arXiv:1606.01876

Math. Res. Letters (accepted)

4. *Exotic t -structures for two-block Springer fibers* (pre-print, with Rina Anno), arXiv:1602.00768

5. *Irreducible components of exotic Springer fibres* (pre-print, with Daniele Rosso and Neil Saunders)

arXiv:1611.05844

6. *Categorification via blocks of modular representations of sl_n* (pre-print, with Gufang Zhao)

arXiv:1612.06941

7. *Irreducible components of exotic Springer fibres II: Robinson-Schensted correspondences*, (pre-print, with Daniele Rosso and Neil Saunders), arXiv:1710.08948
8. *Modular representations of sl_k with a two-row nilpotent p -character* (pre-print, with David Yang) arXiv:1710.08754

Invited Talks & Conferences

Representation Theory Session, AustMS conference; co-organizer

5/17, University of Toronto, Geometric Representation Theory seminar, “Categorification via blocks of modular representations”

5/17, University of Massachusetts, Amherst, Representation Theory seminar, “The exotic Robinson-Schensted correspondence”

12/16, AustMS conference, Australian National University, Representation Theory Session, “Modular representations with two-block nilpotent central characters in type A ”, 20-minute talk

5/16, “Algebraic Groups, Quantum Groups and Geometry”, University of Virginia, “Categorification via blocks of modular representations for sl_n ”, 20-minute talk

4/16, AMS Spring Western Sectional Meeting, University of Utah, “Categorifying $U_q(sl_2)$ representations via blocks of modular representations for sl_m ”, 20-minute talk

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)

Teaching

Fall 2017, University of Sydney, MATH1002, Linear Algebra; lecturer

Fall 2016, University of Utah, MATH2210 Vector Calculus; lecturer (2 sections)

Spring 2013 MIT, 18.06 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 undergraduate-level research program “PRIMES”

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