

KEVIN R. MCGERTY
CURRICULUM VITÆ

Address

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Employment

- 2008- present, Institute for Advanced Study:
Member, School of Mathematics, participant in special programme
on Representation theory and connections to geometry and physics.
- 2006- present, Imperial College London:
Royal Society University Research Fellow, (on leave Autumn 06).
- 2004- 2007, University of Chicago:
L.E. Dickson Instructor.
- 2002-04 Institute for Advanced Study:
Member, School of Mathematics.
- Jul – Sept 2002 Clay Mathematics Institute:
Lift-off Fellow, (held at M.I.T.).

Education

- 1997-2002 Massachusetts Institute of Technology:
Ph.D. in mathematics, June 2002. Thesis advisor: George Lusztig.
- 1996-97 Cambridge University, Magdalene College:
Certificate of Advanced Study in Mathematics (Part III), with
distinction.
- 1993-1996 Cambridge University, Magdalene College:
B.A. in mathematics, awarded with first class honours.

Fellowships and awards

- Royal Society University Research Fellowship, 2006-11.
Junior Research Fellowship (declined), Gonville and Caius College, Cambridge, 2004.
Research Assistant, M.I.T., 2000-02.
Teaching Assistant, M.I.T., 1997-99.

Research Papers

- (1) *A geometric construction of the inner product for quantum affine \mathfrak{sl}_n* , preprint available at www.math.uchicago.edu/~mcgerty.
- (2) *Cells in quantum affine \mathfrak{sl}_n* , Int. Math. Res. Not. 2003, no.24, 1341–61.
- (3) *The Kronecker quiver and bases of quantum affine \mathfrak{sl}_2* , Adv. Math. **197**, (2005), no. 2, 411-429.
- (4) *q -Schur algebras and Quantum Frobenius*, Adv Math, **214**, no. 1, 116–131.
- (5) *Hall algebras and Quantum Frobenius*, available at math.QA/0601150.
- (6) *On the center of the cyclotomic Hecke algebra $G(m, 1, 2)$* , preprint, available at www.math.uchicago.edu/~mcgerty.
- (7) *Symmetric functions at a root of unity and the affine Grassmanian.*, in preparation.

- (8) *Representations of the Symmetric group and constructible functions on the Steinberg variety*, in preparation.

Expository Writing

- (1) *Lectures on Algebraic Groups*, available at <http://www.ma.ic.ac.uk/~kmcgerty>.
- (2) *Finite Reductive Groups and their Characters*, notes for a Graduate class at Chicago, 2006, available at <http://www.math.uchicago.edu/~mcgerty>.
- (3) *The Classical Groups*, notes written for an undergraduate class on the topic, 2006, available at <http://www.math.uchicago.edu/~mcgerty>.
- (4) *Surfaces in \mathbb{R}^n* , notes written for an undergraduate course, 2004, available at <http://www.math.uchicago.edu/~mcgerty>.
- (5) *Affine Lie algebras and the MacDonalid identities*, essay written for Part III, Cambridge University, 1997.

Recent Talks

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| Spring '08: | Rutgers Lie Theory seminar. |
| Autumn '07: | London Algebra Colloquium. |
| Spring '07: | University of Cambridge, Algebra seminar. |
| Spring '07: | University of Edinburgh, Lectures on Quantum groups and canonical bases. |
| Fall '06 | Colloquium, Rice University. |
| Spring '06 | Midwest Representation Theory Conference, University of Chicago. |

Teaching

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| Autumn '07: | Lectured on Algebraic Groups and Lie Theory in Taught Course Centre network, Imperial College node. |
| Fall 04 – Fall 06: | Lectured courses in: analysis on \mathbb{R} and \mathbb{R}^n (up to Stokes' Theorem); undergraduate algebra, the classical groups, and a graduate class on finite groups of Lie type. |
| Fall 99 – Spring 02 | Lectured courses on mathematical methods and calculus. Taught in a special freshman program focusing on small group teaching, and was teaching assistant for the Institute expository writing requirement. |
| Supervising: | Reading course on coherent sheaves and derived categories: U. Chicago, Fall '05. Senior Thesis on the character theory of $GL_n(\mathbb{F}_q)$: Princeton University, Spring '04. |

Professional Activities

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| Seminars: | Organized weekly seminar on Stacks and Geometric Representation Theory at the Institute for Advanced Study, '03/'04. |
| Refereeing: | For journals including <i>Advances in Mathematics</i> , <i>Duke Mathematics Journal</i> , and <i>Mathematische Zeitschrift</i> . |