

Ben Elias

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Professional Preparation

Princeton University, Princeton, NJ. Mathematics B.A. 2005.
Brandeis University, Waltham, MA. Mathematics Ph.D. candidate, 2005-2006.
Columbia University, New York, NY. Mathematics Ph.D. 2011.
Massachusetts Institute of Technology, Boston, MA. NSF Postdoctoral Fellow and Instructor, 2011-2014.

Appointments

University of Oregon, Eugene, OR. Tenure-Track Assistant Professor September 2014-present

Publications

(i) Five most closely related to proposal project

The Hodge theory of Soergel bimodules (with Geordie Williamson)
Annals of Mathematics. Second Series 180 (2014), no 3., 1089–1136.
arXiv:1212.0791

Soergel Calculus (with Geordie Williamson)
Preprint arXiv:1309.0865

Quantum Satake in type A: part I
Preprint arXiv:1403.5570

The two-color Soergel calculus
To appear in *Compositio Mathematica*.
arXiv:1308.6611.

On cubes of Frobenius extensions (with Noah Snyder and Geordie Williamson)
Preprint arXiv:1308.5994.

(ii) Five other significant publications

Trace decategorification of the Hecke category (with Aaron D. Lauda)
Preprint arXiv:1504.05267.

A categorification of quantum $\mathfrak{sl}(2)$ at prime roots of unity (with You Qi)
Preprint arXiv:1503.05114

Diagrammatics for Coxeter groups and their braid groups
To appear in *Quantum topology*.
arXiv:1405.4928.

Soergel bimodules for universal Coxeter groups (with Nicolas Libedinsky)
To appear in *Transactions of the AMS*.
arXiv:1401.2467

The Kazhdan-Lusztig polynomial of a matroid (with Nick Proudfoot and Max Wakefield)
Preprint arXiv:1412.7408

Synergistic Activities

Co-organizer of a workshop on positivity in tropical geometry, University of Oregon Eugene, Summer 2015

Program coordinator for PRIMES-USA, Fall 2012–Summer 2013

Faculty mentor for undergraduate and high school research projects:

PRIMES-USA, 2013

PRIMES, 2014

SPUR, Summer 2014

Primary lecturer for several long workshops for graduate students:

Soergel bimodules and Kazhdan-Lusztig conjectures, QGM Aarhus, Spring 2013

Soergel bimodules and Kazhdan-Lusztig theory, IMSc Chennai, Winter 2014

Kazhdan-Lusztig theory and Soergel bimodules, University of Oregon Eugene, Summer 2014

Speaker for youth programs:

Colloquium for SPUR at Boston University, Summer 2013

Lecture series for Mathcamp in Waterville Maine, Summer 2013

Collaborators & Other Affiliations

(i) Collaborators (Total: 11)

Matt Hogancamp – Department of Mathematics, University of Indiana

Daniel Juteau – Department of Mathematics, Universite de Caen

Aaron D. Lauda – Department of Mathematics, University of Southern California

Nicolas Libedinsky – Department of Mathematics, Universidad de Chile

Ivan Loseu – Department of Mathematics, Northeastern University

Nicholas Proudfoot – Department of Mathematics, University of Oregon

You Qi – Department of Mathematics, University of California at Berkeley

Noah Snyder – Department of Mathematics, University of Indiana

Max Wakefield – Department of Mathematics, US Naval Academy

Geordie Williamson – Max Planck Institute for Mathematics and University of Sydney

Benjamin Young – Department of Mathematics, University of Oregon

(ii) Graduate and Postdoctoral Advisors (Total: 2)

Graduate advisor: Mikhail Khovanov – Department of Mathematics, Columbia University

Postdoctoral sponsor: Roman Bezrukavnikov – Departments of Mathematics, Massachusetts Institute of Technology

(iii) Thesis Advisor and Postgraduate-Scholar Sponsor (Total: 0)

None