

# Peter McNamara

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## RESEARCH INTERESTS

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Combinatorics, often of an algebraic or order-theoretic nature. Recent work has involved edge labellings of partially ordered sets, P-partitions and questions of Schur-positivity.

## EDUCATION AND POSTDOCTORAL EMPLOYMENT

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LACIM, UNIVERSITÉ DU QUÉBEC À MONTRÉAL, July 2003-present  
Postdoctoral Fellow  
Mentors: François Bergeron and Christophe Reutenauer  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 1999-2003  
Ph.D. in Pure Mathematics, June 2003  
Advisor: Richard P. Stanley  
TRINITY COLLEGE, DUBLIN, IRELAND, 1995-1999  
B.A. in Mathematics

## PAPERS AND PUBLICATIONS

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*The difference of products of Schur functions*, with François Bergeron, preprint.  
*Cylindric skew Schur functions*, submitted, 32 pages, 2004.  
*Extending characterizations of lattice supersolvability*, with Hugh Thomas, European Journal of Combinatorics, to appear, 13 pages.  
*Edge labellings of partially ordered sets*, Ph.D. thesis, 2003.  
*EL-labellings, supersolvability and 0-Hecke algebra actions on posets*, Journal of Combinatorial Theory (Series A), 101 (1):69-89, 2003.

## HONORS AND AWARDS

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Charles W. and Jennifer C. Johnson Prize, 2003. Awarded by the MIT Department of Mathematics to a graduate student for an outstanding research paper accepted for publication in a major journal.  
Charles and Holly Housman Award for Excellence in Teaching, 2003. Awarded by the MIT Department of Mathematics to a graduate student on the basis of student and staff evaluations.  
MIT Presidential Fellowship, 1999-2000  
Gold Medal for academic excellence upon graduation, Trinity College, 1999  
Lloyd, Michin and Roberts Prizes and Foundation Scholarship, Trinity College, 1996-1998  
Individual winner, Irish Intervarsity Mathematics Competition, 1998  
Honorable Mention, International Mathematics Olympiad, Toronto, 1995

## SELECTED PRESENTATIONS

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University of Minnesota Combinatorics Seminar, November 2004  
*"Cylindric Skew Schur Functions"*

Le Séminaire du LaCIM, Université du Québec à Montréal, October 2004

*“Positivity Questions for Generalised Schur Functions”*

Retrospective in Combinatorics: Honoring Stanley’s 60th Birthday, MIT, June 2004

*“Cylindric Schur Functions”*

York University Applied Algebra Seminar, February 2004

*“P-partitions and Quasi-Symmetric Functions”*

McGill Discrete Mathematics and Optimization Seminar, November 2003

*“Questions of Schur-Positivity”*

Le Séminaire du LaCIM, Université du Québec à Montréal, September 2003

*“Edge Labellings of Partially Ordered Sets and Their Implications”*

Formal Power Series and Algebraic Combinatorics, Vadstena, Sweden, June 2003

*“Poset Edge-Labellings and Left Modularity”*

Ph.D. Thesis Defense, MIT, April 2003

*“Edge Labellings of Partially Ordered Sets”*

AMS Special Session on Lattice Theory, Joint Mathematics Meetings, Baltimore, January 2003

*“Equivalent Characterizations of Lattice Supersolvability and Their Extensions”*

Canadian Mathematical Society Summer Meeting, Québec City, June 2002

*“Permutation Edge-Labellings of Partially Ordered Sets”*

MIT Combinatorics Seminar, December 2001

*“Two New Characterizations of Lattice Supersolvability”*

## TEACHING AND MENTORING EXPERIENCE

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**Mentor**, Research Experiences for Undergraduates Program, College of William and Mary, Virginia, Summer 2004  
As part of NSF-funded program, guided two undergraduate research projects in Matrix Analysis. Worked with students to improve the mathematical exposition in their writing and presentations.

**Lecturer**, Calculus, MIT, Summers 2001 and 2002

Full responsibility for course including textbook choice, syllabus design, lecturing, writing problem sets and exams, guiding the teaching assistant and holding office hours. This was a component of Project Interphase, an intensive program for entering first-years from minority backgrounds.

**Recitation Instructor**, MIT, 2000-2003

Taught for courses in Calculus, Linear Algebra, Differential Equations, Multivariable Calculus and Complex Analysis. Responsibilities included leading recitations, holding office hours, grading exams and homework and assigning final grades.

**Mentor**, Summer Program for Undergraduate Research, MIT, 2001

Compiled a short list of appropriate open problems and presented them to an undergraduate student. Through daily meetings, guided him on his chosen research project regarding the combinatorics of hyperplane arrangements.

**Microteaching Workshop**, MIT Department of Mathematics, August 2000

Gave a short recitation-style presentation to workshop participants; critiqued by the group and by faculty members. Discussed various teaching methods.

**Individual Tutor** for high school students, 1992-1998

## OTHER PROFESSIONAL ACTIVITIES

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**Organizer of Special Session** in Algebraic Combinatorics at the Winter Meeting of the Canadian Mathematical Society, December 2004

**Research Assistant**, MIT and Whitehead Institute, Summer 2000

Member of the development team of a gene-finding program as part of the MIT and Whitehead Institute’s contribution to the Human Genome Project.

**Referee** for Journal of Combinatorial Theory, Series A, and the Electronic Journal of Combinatorics