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Citizenship: United States

Education

- **University of California, San Diego** La Jolla, CA
Ph.D., Mathematics 2009
M.A., Mathematics 2005
- **Harvey Mudd College** Claremont, CA
B.S., Mathematics 2003
– Graduated with High Distinction, and Honors in Mathematics and Computer Science.

Awards

- **NSF Graduate Research Fellowship** 2003 – 2006

Research Experience

- **University of California, San Diego** La Jolla, CA
Ph.D. Research 2004 – 2009
– Dissertation research on problems in geometric analysis and probability theory. Advisor: Prof. Bruce Driver.
- **Harvey Mudd College** Claremont, CA
Senior Thesis Research 2002 – 2003
– Yearlong individual research project on a problem in representation theory and combinatorics. Advisor: Prof. Michael Orrison.

Teaching Experience

- **University of California, San Diego** La Jolla, CA
Associate Instructor 2008, 2009
– Instructor of record for Math 3C (Precalculus) and Math 20A (Calculus for Science and Engineering)
– Prepared and presented lectures, held office hours, selected assignments, wrote exams, supervised teaching assistant and grader, assigned grades
- **University of California, San Diego** La Jolla, CA
Qual Review Instructor 2008
– Taught intensive review course for graduate students retaking qualifying exam in real analysis
– Prepared and presented review material, wrote problem sets and practice exams, worked individually with students
- **University of California, San Diego** La Jolla, CA
Teaching Assistant 2003 – 2008
– Taught discussion sections, held office hours, graded exams, maintained grade data
– Courses: Math 10C (Calculus), Math 20A, 20B, 20C (Calculus for Science and Engineering), Math 240 (Graduate Real Analysis), Math 280 (Graduate Probability Theory)

Publications

- N. Eldredge. Hypoelliptic heat kernel inequalities on H-type groups. Ph.D. dissertation, 2009.
- N. Eldredge. Gradient estimates for the subelliptic heat kernel on H-type groups. Submitted, *J. Funct. Anal.*, 2009.
- N. Eldredge. Precise estimates for the subelliptic heat kernel on H-type groups. To appear in *J. Math. Pures. Appl.*, 2009.
- N. Eldredge. *An eigenspace approach to isotypic projections for data on binary trees*. Senior thesis, Harvey Mudd College, 2003.

Selected Presentations

- “Hypoelliptic heat kernels on Lie groups.” PDE seminar, Purdue University, May 2009.
- “Precise estimates for the subelliptic heat kernel on H-type groups.” Joint Mathematical Meetings, Washington, D.C., Jan. 2009.
- “Subriemannian geometry and probability.” PIMS Summer School in Probability, Vancouver, B.C., June 2008.
- “Rough paths for probabilists.” Graduate Student Conference in Probability, Madison, Wisc., Apr. 2007.
- “Efficient eigenspace projections with compression.” Joint work with R. Arenas and M. E. Orrison. AMS Special Session on Research in Mathematics by Undergraduates, Joint Mathematical Meetings, Baltimore, Jan. 2003.
http://www.ams.org/amsmtgs/2074_abstracts/983-15-1424.pdf