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Curriculum Vitae

Nathaniel Thiem
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Appointments and Education

Stanford University, 2004–Present,
Szegö Assistant Professor.

University of Wisconsin-Madison, 1999–2004,
Ph.D. in mathematics, May 2004,
Dissertation title: *Unipotent Hecke algebras*,
Advisor: Arun Ram,
Minor: Mathematics education.

Macalester College, 1995–99,
B.A. magna cum laude in mathematics, May 1999.

Research interests

General Algebra and combinatorics (MSC 20, 05).

Specific Representation theory, character theory, groups of Lie type, Hecke algebras, symmetric functions.

Teaching Experience

2004–Present Stanford University,

- Basic undergraduate courses: “Linear algebra and differential calculus of several variables,” and “Matrix theory and its applications,”
- Advanced undergraduate courses: “Introduction to combinatorics and its applications,” “Modern algebra,” and “Group representations.”

1999–2004 University of Wisconsin,

- Primary instructor: “Arithmetic problem solving” and “Mathematical models” for the Wisconsin K-8 teaching certificate program, and second semester calculus,
 - Teaching assistant: First, second, and third semester calculus in the discussion section format; first and second semester calculus as part of the Wisconsin Emerging Scholars program (a program developed for traditionally under-achieving students with an intensive focus on group work).
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Honors

- Wisconsin mathematics department research award, May 2004.
 - Vertical Integration of Research and Education (VIGRE) fellowship at Wisconsin, 2002–03.
 - VIGRE summer research assistantship, Summer 2000 and Summer 2001.
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Publications

1. “Gelfand-Graev characters for the finite unitary group,” with C.R. Vinroot. Submitted for publication, 2006, arXiv math.RT/0611010.
 2. “Supercharacter formulas for pattern groups,” with P. Diaconis. Submitted for publication, 2006, arXiv math.RT/0610161.
 3. “On the characteristic map of finite unitary groups” with C.R. Vinroot. To appear in *Advances in Mathematics*.
 4. “A skein-like multiplication algorithm for unipotent Hecke algebras.” To appear in *Transactions of the American Mathematical Society*.
 5. “Unipotent Hecke algebras of $GL_n(\mathbb{F}_q)$.” *Journal of Algebra* **284** (2005): 559-577.
 6. “Quadratic Corestriction, C_2 -embedding problems, and explicit construction” with J. Swallow. *Communications in Algebra* **30** (2002): 3227-3258.
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In preparation

- “Combinatorics of the q -partition algebra,” with T. Halverson.
- “Sums of characters at arbitrary conjugacy classes,” with C.R. Vinroot.

Invited talks

- “A supercharacter theory for pattern groups,” Special session on “Combinatorial representation theory” *AMS sectional meeting at the University of Arkansas-Fayetteville*, November 3, 2006.
 - “Supercharacter theory for unipotent groups,” University of Arizona-Tucson, September 12, 2006.
 - “Hecke algebras in combinatorial representation theory,” Millican colloquium series, University of Northern Texas. March 31, 2006.
 - “The finite unitary group, Deligne-Lusztig induction, and tableaux combinatorics,” *Flavors of Groups*. BIRS Workshop. November 19, 2005.
 - “Unipotent Hecke algebras,” UC Berkeley Combinatorics Seminar. January 31, 2005.
 - “Braids and tableaux for unipotent Hecke algebras,” Bay Area Discrete Mathematics Day (BAD math day), San Jose State University. April 9, 2005.
 - “How to multiply matrices the hard way: braid relations for $GL_n(\mathbb{F}_q)$ and the RSK correspondence,” UC Davis graduate student seminar. December 8, 2004.
 - “Unipotent Hecke algebras.” University of Minnesota Combinatorics Seminar, November 21, 2003.
 - “Unipotent Hecke algebras for finite groups of Lie type,” Special session on “Algebras and their representations.” *AMS sectional meeting in Chapel Hill*, October 25, 2003.
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Other academic activities

- Sophomore advisor at Stanford University, Fall 2006–Present.
- Freshman advisor at Stanford University, 2005–06.
- On the organizing board of Bay Area Discrete Math Day Fall 2004–Present.
- Co-organizer of the Representation Theory Seminar at Stanford University, Fall 2004–Present.
- Assistant in running “Groups of Lie type,” a conference in honour of Lou Solomon, 2000.