

James P. Cossey

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Place of birth: US Naval Base, Guantanamo Bay, Cuba

EMPLOYMENT AND EDUCATION

- **University of Akron**, Akron, Ohio.
Assistant Professor, August 2008-present.
- **University of Arizona**, Tucson, Arizona.
Teaching Postdoc, August 2005 - July 2008.
- **University of Wisconsin**, Madison, Wisconsin.
Ph.D. in Mathematics, 2005.
Dissertation titled “Generalizations of the Fong-Swan Theorem,” written under the direction of thesis adviser I.M. Isaacs.
- **University of Chicago**, Chicago, Illinois.
B.S. with honors in Mathematics, minor in Statistics, 1999.

TEACHING EXPERIENCE

- **University of Arizona** (August 2005 - July 2008). Instructor for undergraduate and graduate courses including:
 - Combinatorics (cross-listed as both undergraduate and graduate course)
 - Linear Algebra (cross-listed as both undergraduate and graduate course)
 - Math 498 (supervising senior honors thesis)
 - Introduction to Probability Theory (junior/senior level probability class) and Introduction to Statistics and Biostatistics
 - (assistant instructor) Math 597t, Professional Development Workshop in Teaching Mathematics (teacher training for new graduate teaching assistants)
 - Business Mathematics I and II (class for business school students featuring extensive computer projects and introduction to statistics and calculus in a business setting)
 - Calculus Preparation, Calculus I with Applications, Calculus II, and Vector Calculus

- **University of Wisconsin** (1999-2005):
 - Algebra (instructor)
 - Calculus I and Calculus III (teaching assistant)
 - Business Calculus (teaching assistant)
 - Teaching assistant for Wisconsin Emerging Scholars program
 - Grader for Graduate Algebra classes
- **University of Chicago** (1997-1999)
 - Elementary Functions and Calculus, I and II (teaching assistant)

RESEARCH INTERESTS

General Area: Representation theory of finite groups, specifically focusing on the interplay between ordinary and modular representations. In addition, I study the representation theory of symmetric groups and the related combinatorics.

PUBLICATIONS

Please see my webpage for more information, including abstracts and preprints.

1. **Bounds on the number of lifts of a Brauer character in a p -solvable group**, *Journal of Algebra* **312** (2007), no. 2, 699-708.
2. **A construction of two distinct canonical sets of lifts of Brauer characters of a p -solvable group**, *Arch. Math* **87** (2006), no. 5, 385-389.
3. (with Mark Lewis) **Fong characters and chains of normal subgroups**, *Arch. Math.* **89** (2007), no. 3, 193-201.
4. **Vertices of π -irreducible characters of groups of odd order**, to appear in *Communications in Algebra*.
5. **Irreducible Specht modules and Rouquier blocks** (in preparation).

SELECTED TALKS AND SEMINARS

For a complete list of all talks, see my webpage.

- *Uniqueness of lifts of Specht modules in the symmetric group*, AMS Southwestern sectional meeting, April 2007.
- Panelist, *The 2006 Inquiry Based Learning workshop*, 10th annual Legacy of R.L. Moore conference, Austin, Texas, April 2007.

- *Combinatorics and the representation theory of the symmetric group*, Northern Arizona University Colloquium Series, April 2007.
- *Vertices of lifts of Brauer characters*, Zassenhaus Group Theory Conference, Ohio State University, March 2007.
- *Bounds on the number of lifts of a Brauer character of a solvable group*, Ohio State-Denison Mathematics Conference, May 2006.
- *True lies Euler told me: Power series, "proofs", and partitions*, University of Arizona Math Instruction Colloquium, Fall 2005.
- *Lifts of Brauer characters of solvable groups*, Southeast Louisiana University Colloquium Series, February 2005.

ACTIVITIES AND SERVICE

- Activities with Undergraduates
 - Adviser on two undergraduate research projects, one on representations of braid groups and one on combinatorics related to the symmetric group. Both final reports are available on my webpage.
 - Supervising a senior honors thesis on representations of finite groups.
 - Coordinator of Undergraduate Teaching Assistant program, spring and fall of 2007. Recruited, trained, and supervised undergraduate math majors to be teaching assistants in a wide variety of classes in the math department.
- Outreach Activities
 - Teacher Improvement through Mathematics Education (2007 and 2008): For two different summers, served as instructor for intense three week teacher improvement program for elementary and middle school educators in the Tucson Unified School District.
 - Counselor for University of Chicago Young Scholars Program, a four week math program for talented middle and high school math students (1997-1999).
 - Counselor for SESAME - Seminars for Elementary Specialists and Math Educators, a two week professional development program for middle and high school math teachers (1997-1999).
- Professional Development
 - Attended Inquiry Based Learning workshop in Costa Mesa, California, in summer of 2006. Developed techniques for helping students learn proof-writing techniques and develop as mathematicians.
 - Participated in year-long Learner Centered Education program at the University of Arizona.

- Project NExT: A professional development program for new PhD's in mathematics. Attended various conferences and workshops related to issues facing new PhD's, including teaching and research issues.
 - Organizational Activities
 - Co-organizer, Southwest Group Theory Day, conference to be held at University of Arizona on October 27, 2007.
 - Co-organizer of Group Theory Seminar at University of Arizona.
 - Co-organized panel discussion "Research with undergraduate students" for Project NExT at Joint Meetings in January of 2006.
 - Co-organized panel discussion "Creating or re-creating a new course" for Project NExT at MathFest in August of 2006.
 - Other Activities
 - Member of Undergraduate Committee in the University of Arizona mathematics department, 2007-2008.
 - Referee for various journals.
 - Reviewer for Mathematical Reviews
 - Teaching assistant coordinator at the University of Wisconsin, fall 2002.
 - Teaching Assistant Evaluation Committee, University of Wisconsin, 2003-2004.
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REFERENCES

- I. Martin Isaacs, University of Wisconsin (Thesis Adviser)
- Mark Lewis, Kent State University
- Klaus Lux, University of Arizona
- Elias Toubassi, University of Arizona (Teaching Reference)
- Stan Yoshinobu, Cal State University, Dominguez Hills (Teaching Reference)