

Neville Fogarty

Department of Mathematics

University of Kentucky

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Education

University of Kentucky, Lexington, KY

M.A. in Mathematics, May 2014

Candidate, Ph.D. in Mathematics, May 2016

Member of O Δ K honor society

Washington & Lee University, Lexington, VA

B.S. in Mathematics & Economics, May 2010

magna cum laude, member of Φ H Σ , IIME, O Δ E, & Φ BK honor societies

Research Interests

In algebraic coding theory, cyclic codes are a class of codes with convenient attributes, such as algorithms for error detection and correction. I study skew-constacyclic codes, which generalize cyclic codes by utilizing noncommutative skew-polynomial rings. My advisor is Dr. Heide Gluesing-Luerssen; my dissertation is titled *On Skew-Constacyclic Codes*.

Publications

- N. Fogarty and H. Gluesing-Luerssen. A circulant approach to skew-constacyclic codes. *Finite Fields and Their Applications*, 35(0):92-114, 2015. arXiv:1408.5445.

Fellowships and Awards

- Graduate School Multi-Year Fellowship, University of Kentucky, 2011-2014
- John McKenzie Gunn Award in Economics, Washington & Lee University, 2010

Teaching Experience

Teaching Assistant, University of Kentucky, September 2011 - present

Primary Instructor: Responsibilities include creating syllabi and lecture notes, writing and grading homework and exams, lecturing and leading class discussions, and holding office hours.

- MA 123 - Elementary Calculus and its Applications, Fall 2015
- MA 202 - Mathematical Problem Solving for Elementary Teachers, Spring 2014
- MA 109 - College Algebra, Spring 2013
- MA 109 - College Algebra, Summer 2012

Recitation/Workshop Leader: Responsibilities include leading recitation sections, preparing recitation materials, grading, and holding office hours.

- MA 162 - Finite Math, Spring 2016
 - MA 114 - Calculus II*, Spring 2015
 - MA 113 - Calculus I*, Fall 2014
 - MA 213 - Calculus III, Fall 2013
 - MA 114 - Calculus II, Fall 2012
 - MA 113 - Calculus I, Spring 2012
 - MA 113 - Calculus I, Fall 2011
- *These courses were part of the MathExcel program, an intensive problem-solving approach to the standard calculus sequence. Students spend extra time each week working on enriching exercises in small groups with assistance from the workshop leader and undergraduate assistants.*

Calculus Tutor, Washington & Lee University, September 2007 - April 2010

Ran weekly help sessions for Calculus I & II and coordinated the scheduling of all tutors

Talks and Presentations

- *Idempotents in Skew-Constacyclic Codes*
AMS Session on Number Theory, Joint Mathematics Meetings, Seattle, January 7, 2016
- *The Math of SET*
Graduate Student Colloquium, University of Kentucky, December 9, 2015
- (Invited) *A Circulant Approach to Skew-Constacyclic Codes*
Special Session on Coding Theory and Its Applications, AMS Fall Sectional Meeting, Loyola University Chicago, October 4, 2015
- *A Circulant Approach to Skew-Constacyclic Codes*
Algebra Seminar, University of Kentucky, September 30, 2015
- *The Hardest Logic Puzzle Ever*
Summer Math Lunch Seminar, University of Kentucky, July 9, 2015
- (Invited) *An Introduction to θ -Constacyclic Codes and Their Duals*
Math Department Seminar, Washington & Lee University, March 18, 2015
- *An Introduction to Skew-polynomial Rings*
Graduate Student Colloquium, University of Kentucky, February 25, 2015
- *Duals of Skew θ -Constacyclic Codes*, Qualifying examination
Algebra Seminar, University of Kentucky, October 29, 2014
- *The Bound on the Length of Sequences of Consecutive n -Harshad Numbers*
Summer Math Lunch Seminar, University of Kentucky, July 24, 2014
- *Duals of Skew θ -Constacyclic Codes*, Master's talk
Algebra Seminar, University of Kentucky, April 17, 2014

Conferences Attended

- Joint Mathematics Meetings, Seattle, WA, January 2016
- AMS Central Sectional Meeting, Loyola University Chicago, October 2015
- AMS Central Sectional Meeting, University of Louisville, October 2013
- MAA Kentucky Section Meeting, Transylvania University, April 2013

Projects and Outreach

- **Assistant**, High School Math Day for Women, 2013, 2014, & 2015
Wrote competition problems, ran Set card game sessions, assisted in set-up and break-down
- **Math Circle Assistant**, Tates Creek Elementary School, Spring & Fall 2013
Guided elementary students through activities using Zometool construction kits
- **First Year Representative**, UK Math Graduate Student Council, Fall 2011 - Fall 2012
Hosted biweekly departmental teas, revised the GSC Constitution
- **Problem Set Contributor**, UK Math Department, Summer 2012
Revised Calculus I (MA 113) online homework problems under supervision of faculty

Other Employment

- **Account & Data Reference Specialist**, JPMorgan, September 2010 - July 2011
Set up domestic & international pension accounts, managed tax documentation
- **Intern**, National Security Agency, Summer 2009
Mathematics Summer Employment Program
Additional information available upon request
- **Researcher**, The University of West Georgia, Summer 2008
Research Experience for Undergraduates
Topics: Ramsey theory, graph theory
- **Cruciverbalist**, Freelance, Summer 2007 - present
Write crossword and variety puzzles for *The New York Times*, the *Los Angeles Times*, *The Chronicle of Higher Education*, *Will Shortz's WordPlay*, *BuzzFeed*, self-publication, and other venues

Professional Memberships

- American Mathematical Society
- Association for Women in Mathematics
- National Organization of Gay and Lesbian Scientists and Technical Professionals
- Society for Industrial and Applied Mathematics