

# Paulette N. Willis

## Curriculum Vitae

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## Employment

2010-2013 **NSF Postdoctoral Fellow**, *University of Houston*, Houston, TX.

## Education

May 2010 **Ph.D. Mathematics**, *University of Iowa*, Iowa City, IA.

Dissertation: *C\*-algebras of labeled graphs and \*-commuting endomorphisms*

December 2006 **M.S. Mathematics**, *University of Iowa*, Iowa City, IA.

May 2004 **B.S. Mathematics**, *Southern University at New Orleans*, New Orleans, LA.

May 2004 **B.S. Physics**, *Southern University at New Orleans*, New Orleans, LA.

## Research Interests

- Functional Analysis (46L) and Dynamical Systems (37B)

## Publications

*Examples of \*-commuting maps*, submitted, with Ben Maloney, arXiv:1101.3795 [math.OA].

*Group actions on labeled graphs and their C\*-algebras*, with Teresa Bates and David Pask, in preparation.

## Presentations and Conferences

### Presentations

- **Colloquium.** *C\*-algebras of labeled graphs with group actions*, March 2011, Arizona State University, Tempe, AZ.
- **C\*-algebra Seminar.** , March 2011, Arizona State University, Tempe, AZ.
- **Analysis Seminar.** *Labeled graph C\*-algebras with group actions*, August 2010, University of Houston, Houston, TX.
- **Workshop in Linear Analysis and Probability—invited speaker.** *Group Actions, Labeled Graphs, and C\*-algebras*, July 2010, Texas A&M University.
- **Great Plains Operator Theory Symposium—plenary speaker.** *Group Actions on the C\*-algebras of Labeled Graphs*, June 2010, University of Denver.
- **Summer school on C\*-algebras and their interplay with dynamical systems.** *Labeled Graph C\*-algebras with Group Actions*, University of Oslo, Nordfjordeid, Norway, June 2010.
- **Iowa-Nebraska Functional Analysis Seminar—plenary speaker.** *Labeled Graph C\*-algebras with Group Actions*, University of Iowa, Des Moines campus, April 2010.

- **Seminar.** *Group Actions, Labeled Graphs, and  $C^*$ -algebras*, March 2010, Creighton University.
- **Operator Theory Seminar.** *Crossed Products of Labeled Graph  $C^*$ -algebras*, February 2010, University of Iowa.
- **Linear Analysis Seminar.** *Group Actions, Labeled Graphs, and  $C^*$ -algebras*, January 2010, Texas A&M University, College Station, TX.
- **Special Session on Graph Algebras in Analysis and Algebra, AMS-MAA Joint Mathematics Meetings.** *Labeled Graph  $C^*$ -algebras with Group Actions*, January 2010, San Francisco, CA.
- **Analysis Seminar.**  *$*$ -commuting Exel systems*, October 2009, University of Houston, Houston, TX.
- **Operator Theory Seminar.** *Exel systems*, October 2009, University of Iowa.
- **Operator Algebra Seminar.** *Representations of product systems built from Exel systems*, May 2009, University of Wollongong, Wollongong, Australia.
- **Operator Theory Seminar.**  *$K$ -Theory of Graph Algebras*, October 2007, University of Iowa.
- **Graduate and Undergraduate Students Seminar (GAUSS).** *An Introduction to Tensor Calculus*, 2005, University of Iowa.

### Conferences Attended

- **AMS-MAA Joint Mathematics Meetings**, New Orleans, LA, January 2011.
- **New Zealand Mathematical Society Colloquium**, University of Otago, Dunedin, New Zealand, December 2010.
- **East Coast Operator Algebra Symposium**, Dartmouth College, October 2010.
- **Set Theory and Functional Analysis Concentration Week**, Texas A&M University, July 2010.
- **Great Plains Operator Theory Symposium**, University of Denver, June 2010.
- **Iowa-Nebraska Functional Analysis Seminar**, University of Iowa, Des Moines campus, April 2010.
- **AMS-MAA Joint Mathematics Meetings**, San Francisco, CA, January 2010.
- **Iowa-Nebraska Functional Analysis Seminar**, University of Iowa, Des Moines campus, November 2009.
- **East Coast Operator Algebra Symposium**, Texas A & M University, October 2009.
- **Great Plains Operator Theory Symposium**, University of Colorado-Boulder, June 2009.
- **AMS-MAA Joint Mathematics Meetings**, Washington, D.C., January 2009.
- **Great Plains Operator Theory Symposium**, University of Cincinnati, June 2008.
- **Groupoid Fest**, University of Iowa, November 2007.
- **Great Plains Operator Theory Symposium**, University of Nebraska-Lincoln, May 2007.
- **Great Plains Operator Theory Symposium**, University of Iowa, May 2006.
- **Iowa-Nebraska Functional Analysis Seminar**, Drake University, April 2006.

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## Grants and External Funding

2010-2013 **NSF Mathematical Sciences Postdoctoral Research Fellowship (PI), \$ 135,000.**

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## Synergistic Activities

(1) As a graduate student I have worked as an instructor, teaching assistant, and supervised the research of 3 undergraduate students while working for the Alliance for Graduate Education and the Professoriate (AGEP) summer program. (2) Aided by my Sloan and T. Anne Cleary Fellowships I spent nine months at the University of Wollongong pursuing research that culminated in my dissertation and several papers, two of which are currently in preparation. (3) I was appointed by the Provost of the University of Iowa to serve as the graduate student representative on the Diversity Action Committee. This committee was charged with suggesting specific steps the University can take to design and implement a comprehensive action plan that will guide campus efforts to implement and achieve the diversity goals outlined by the president in his strategic plan. (4) I have mentored minority students entering the doctoral program in mathematics at the University of Iowa. Also, I am currently mentoring an undergraduate through the Association for Women in Mathematics (AWM) mentoring program. (5) I was co-founder and former chair of the Math Graduate Board at the University of Iowa, an organization founded and run by the mathematics graduate students. This organization was instrumental in helping to secure our department's Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE) grant. Through this organization I have also redesigned some of our recruitment activities and attended various conferences to recruit minority students. (6) I was co-organizer of the Sonia Kovalevsky Day for female high school students hosted at the University of Iowa.

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## Awards, Honors and Memberships

2010-2013 **NSF Mathematical Sciences Postdoctoral Research Fellowship**

2010 **VIGRE Fellowship**

2008-2009 **Sloan Fellowship**

2008 **T. Anne Cleary Fellowship**, University of Iowa

2004-2007 **Graduate Assistance in Areas of National Need Fellow (GAANN)**

**Member of American Mathematical Society**

**Member of the Association for Women in Mathematics**

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## Teaching Experience

### Department of Mathematics, The University of Iowa

- **FUNDAMENTAL PROPERTIES OF SPACES AND FUNCTIONS I. Teaching Assistant**, Fall 2009. Responsibilities: grading homework and quizzes and leading discussion sections
- **BASIC ALGEBRA II. Instructor**, Spring 2008. Responsibilities: developing syllabus, writing and grading homework, quizzes and exams; leading lectures
- **MATHEMATICS FOR BUSINESS. Teaching Assistant**, Fall 2007. Responsibilities: writing and grading quizzes; leading discussion sections

## Other Teaching-Related Activities

- Summer 2008 **Algebra Instructor for the BEST CHESS program for gifted 2<sup>nd</sup> and 3<sup>rd</sup> grade students**, *Belin and Blank International Center for Gifted Education and Talent Development*, Designed an algebra course for gifted 2<sup>nd</sup> and 3<sup>rd</sup> grade students, created lesson plans, created a parent worksheet describing what their children will learn in class, found supplies (i.e. hands on materials and activities designed to explain upper level mathematical concepts to elementary students), selected the textbooks and workbooks, created a budget for the course, and taught the class.
- Summer 2008 **Upward Bound Summer Program Algebra Instructor**, Designed two courses for high school students (one course was basic algebra and the other course taught mathematical concepts used in everyday adult life), created a syllabus for each course, selected the books for the courses, and created quizzes and tests.
- Spring 2008 **Topology Instructor for the WINGS program for gifted 3<sup>rd</sup> and 4<sup>th</sup> grade students**, *Belin and Blank International Center for Gifted Education and Talent Development*, Designed an topology course for gifted 3<sup>rd</sup> and 4<sup>th</sup> grade students, found supplies and activities appropriate for the class, selected the textbooks and workbooks, created a budget, and taught the class.
- Summer 2007 **Alliance for Graduate Education and the Professoriate (AGEP) Summer Teaching Assistant for Orthogonal Polynomials course**, Responsible for hosting discussion sections, grading homework, serving as a research mentor for three students, and helping with research and presentations.
- Fall 2007 **Program for Success in Mathematics Student Coordinator**, Designed a program (in conjunction with the College of Business) to identify business students who need extra tutoring in calculus and provide them with one-on-one tutoring from a graduate student in mathematics as well as participated as a tutor.

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## Service

### Conferences

- **Iowa Mathematical Field of Dreams Conference**, University of Iowa, October 2010 - invited panelist.
- **Texas Southern University REU**, Texas Southern University, August 2010—invited to speak to undergraduates from underrepresented groups to encourage interest in graduate school.
- **Iowa Mathematical Field of Dreams Conference**, University of Iowa, September 2009 - invited graduate student panelist.
- **MAA MathFest**, University of Wisconsin, Madison, July 2008 - invited graduate student panelist.
- **Nebraska Conference for Undergraduate Women in Mathematics**, University of Nebraska-Lincoln, February 2008 - invited graduate student panelist.
- **Historically Black Colleges and Universities Undergraduate Program Conference**, Bowie State University, February 2006 - graduate student recruiter.
- **Historically Black Colleges and Universities Undergraduate Program Conference**, Southern University at New Orleans, February 2005 - invited graduate student panelist.
- **Louisiana Louis Stokes Alliance for Minority Participation Conference**, New Orleans, LA, October 2004 - graduate student recruiter.

### Additional Service Activities

- 2010 to present **Co-advisor for the University of Houston's chapter of Pi Mu Epsilon.**
- 2010 to present **Mentor in the National Alliance for Doctoral Studies in the Mathematical Sciences.**
- 2010 **Organizer of The University of Iowa's Sonia Kovalevsky Day for Female High School Students Parent/Teacher Workshop**, *This event consists of mathematical activities for high school girls designed to encourage and develop their interest in mathematics as well as sessions for parents and teachers.*
- 2010 **Co-organizer of Building a Diverse American Department: Preparing Future Math Faculty Workshop**, *This workshop was designed to give graduate students an idea of what they can do to build a diverse mathematics department once they attain tenure track positions.*
- 2010 **VIGRE Mentor.**
- 2009 to present **Association for Women in Mathematics (AWM) Mentor.**
- 2008 **Math Graduate Board Chair.**
- 2007-2008 **Co-organizer of The University of Iowa's Sonia Kovalevsky Day for Female High School Students.**
- 2005-2008 **University of Iowa High School Math Competition volunteer.**
- 2005-2007 **Mentor for incoming minority students in graduate mathematics.**
- 2005-2006 **Math Graduate Board General Liaison.**
- 2005 **Graduate Student Representative on Diversity Action Committee appointed by the Provost of the University of Iowa.**
- 2005 **Graduate and Professional Student Senate Member.**