

Fei Xu

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RESEARCH Algebraic geometry, Representation theory, Computational arithmetic geometry
INTERESTS

EDUCATION **Rice University, Houston, Texas, USA**

Ph.D. Mathematics (GPA 4.0/4.0) Expected May 2011

- Honors: Rice Graduate Student Fellowship
Mathematics Department Summer Stipend and Travel Fund
- Dissertation Topic: *On linear sections of Grassmannians*
- Advisor: Brendan Hassett

M.A., Mathematics (GPA 3.96/4.0) May 2008

University of Science & Technology of China, Hefei, Anhui, China

B.S., Mathematics and Applied Mathematics (GPA 3.75/4.0) July 2005

- Honor: Outstanding Student Scholarship
- Dissertation Topic: *On diameters of altered graphs*

CONFERENCE PRESENTATIONS AND POSTERS

- 2010 Mathematics Research Communities Summer Conferences, Snowbird, Utah, *“Linear sections of Grassmannians and their rationalities”*, **June 2010**.
- The 16th GAeL Conference, CES Felipe II, Madrid, Spain, Poster, *“Some moduli spaces of vector bundles on $K3$ surfaces”*, **April 2008**.

RESEARCH TALKS

- On the geometry of Grassmannians and the symplectic group, Current Mathematics Seminar, Rice University, **October 2010**
- Rationality and Hodge structure of linear sections of Grassmannians, Algebraic Geometry Seminar, Rice University, **October 2010**
- Using representation theory to compute Hodge numbers of linear sections of Grassmannians, Group Lecture, Rice University, **August 2010**
- Stacks for everybody, Working Seminar, Rice University, **July 2010**
- Introduction to Brill-Noether loci and hypertree divisors, Group Lecture, MRC, Snowbird, Utah, **June 2010**
- Grothendieck Topologies, Current Mathematics Seminar, Rice University, **April 2010**
- Categories fibered in groupoids, Working Seminar, Rice University, **March 2010**
- Hyper-Kähler fourfolds and Grassmann Geometry, Working Seminar, Rice University, **July 2009**

- Introduction to Gromov-Witten theory and Noether-Lefschetz theory, Current Mathematics Seminar, Rice University, **February 2008**
- Grothendieck's existence theorem for coherent sheaves, Group Lecture, Mathematical Sciences Research Institute - Deformation Theory and Moduli in Algebraic Geometry, **July 2007**

TEACHING
EXPERIENCE

VIGRE Program Advisor

Summer 2010

Served as an Advisor in the VIGRE program at Rice University, a program sponsored by the National Science Foundation to carry out innovative educational programs in which research and education are integrated. Took responsibility for formal mentoring, daily discussion and expanding new research topics.

Instructor

May - December 2008, May 2009

Taught three mathematics courses to undergraduate students and graduate engineering students at Rice University. Took full responsibility for lectures, exams, homework assignments and grades.

- Calculus 101, **Summer 2009**
- Calculus 102, **Fall 2008**
- Calculus 101, **Summer 2008**

Instructor

Summer 2008

Served as Instructor in the Summer Campus Program at Rice University School of Mathematics Project. Directed a seminar for Houston-area K-12 teachers to develop mathematical knowledge and pedagogical skills. Collaborated with local mathematics teachers in their independent and small-group study, tutored and facilitated Combinatorics sessions and also lectured on areas of my own research.

Graduate Teaching Assistant

August 2005 - Present

Served as teaching assistant for 11 semesters. Duties included shared administrative responsibilities with faculty instructors, fielding students' inquiries, giving weekly help sessions and grading exams.

- Abstract Algebra, Fall 2010.
- Commutative Algebra, Spring 2010.
- Single Variable Calculus II, Fall 2009.
- Topics in Mathematics, Spring 2009.
- Multi-variable Calculus, Spring 2008.
- Ordinary Differential Equations, Fall 2007.
- Partial Differential Equations, Spring 2007.
- Calculus and Analytical Geometry, Fall 2006.
- Calculus and Computational Methods, Spring 2006.
- Single Variable Calculus I, Fall 2005.

ACADEMIC
EXPERIENCE

Organizer

Fall 2008 – Summer 2009

Organized and scheduled Algebraic Geometry Working Seminars at the Department

of Mathematics at Rice University.

Coordinator

Fall 2007 – Spring 2008

Served as Coordinator at Rice University School of Mathematics Project, which was established in 1987 and partially sponsored by the National Science Foundation to provide a bridge between the Rice University mathematics research community and Houston-area mathematics teachers. Evaluated the teaching skills of Houston-area high school mathematics teachers. Attended the teaching seminars.

Proofreader

Spring 2007

Provided edits for *Introduction to Algebraic Geometry*, Cambridge University Press.

COMPUTER
SKILLS

- **Computer Languages:** Python, C, C++
- **Database:** SQL, Oracle
- **Programs:** Mathematica, Maple, Singular, Matlab, Microsoft Office, LaTeX, R, SAS
- **Algorithms:** Optimization of coupled multivariate equations, Quality analysis of solution sets, Advanced database manipulation
- **Operating Systems:** Unix/Linux, Windows

LANGUAGES

Mandarin Chinese (native), English (fluent), Cantonese (conversational) and French (reading)

PROFESSIONAL
MEMBERSHIP

Member of Association for Women in Mathematics
Member of American Mathematics Association

August 2005 – Present
August 2005 – Present