

## Aleksandar Petrov

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Department of Mathematics  
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### Education

Ph.D. Mathematics, The University of Arizona, 2006-2012.

Thesis Title: *On  $A$ -expansions of Drinfeld Modular Forms.*

Advisor: Dinesh Thakur

B.A. Mathematics, Reed College, 2002-2006.

Undergraduate Thesis: *Quadratic Fields and Cryptography: Classical and Quantum Aspects.*

Advisor: Jamie Pommersheim

### Research Interest

Number Theory and Arithmetic Geometry over Function Fields, especially Drinfeld Modules, Drinfeld Modular Forms and Arithmetic Properties of Drinfeld Modular Forms.

### Invited Talks

*Non-Standard Fourier Expansions of Drinfeld Modular Forms.* XXII<sup>nd</sup> Recontres Arithmetiques de Caen, Universite de Caen Basse-Normandie, France, 22 June 2011.

### Presentations

*A-expansions of Drinfeld Modular Forms and Harmonic Cocycles.* Algebra & Number Theory Seminar, The University of Arizona, 3 April 2012.

*Fractals and the Geometric Series.* Tucson Math Circle, The University of Arizona, 16 November 2011.

*The Fundamental Group of a Field.* Student Algebraic Geometry Seminar, The University of Arizona, 16 October 2011.

*On Non-Standard Expansions of Drinfeld Modular Forms.* Algebra & Number Theory Seminar, The University of Arizona, 29 March 2011.

*Introduction to Arithmetic Quantum Unique Ergodicity.* Algebra & Number Theory Seminar, The University of Arizona, 2 March 2010.

*Endomorphisms of Abelian Varieties over Finite Fields after John Tate.* Algebra & Number Theory Seminar, The University of Arizona, 6 October 2009.

*Rigid Analysis.* Graduate Colloquium, The University of Arizona, 30 September 2009.

*Local Coordinates on Modular Curves.* Graduate Colloquium, The University of Arizona, 26 March 2008.

*A Formula for the Unit Root of a Family of Calabi-Yau Varieties.* Algebra & Number Theory Seminar, The University of Arizona, 19 February 2008.

*The Group Law of an Elliptic Curve via Riemann-Roch.* Graduate Colloquium, The University of Arizona, 3 October 2007.

*Algebraic Tangents.* Graduate Colloquium, The University of Arizona, 4 April 2007.

*Bezout's Theorem: Theory and Practice.* AAASK Seminar, The University of Arizona, 19 March 2007.

### **Publications and Preprints**

*On  $A$ -expansions of Drinfeld modular forms,* (in preparation).

*Quadratic Fields and Cryptography: Classical and Quantum Aspects,* VDM Verlag (2008). (This is my undergraduate thesis published as a book.)

### **Honors and Awards**

Galileo Circle Scholarship, The University of Arizona, Spring 2012.

VIGRE Matching Funds Fellowship, The University of Arizona, Spring 2011 & Fall 2011.

Graduate and Professional Student Council Travel Award, The University of Arizona, Summer 2011.

Research Assistant, The University of Arizona, Spring 2010.

### **Courses Taught**

Calculus I, The University of Arizona, Spring 2012

Vector Calculus, The University of Arizona, Fall 2010.

Calculus II, The University of Arizona, Summer 2010.

Precalculus, The University of Arizona, Fall 2009.

Vector Calculus, The University of Arizona, Summer 2009.

Calculus II, The University of Arizona, Spring 2009.

Calculus I, The University of Arizona, Fall 2008.

Calculus I, The University of Arizona, Spring 2008.

Precalculus, The University of Arizona, Fall 2007.

College Algebra, The University of Arizona, Spring 2007.

College Algebra, The University of Arizona, Fall 2006.

*As a graduate teaching assistant at the University of Arizona my responsibilities for these courses have included preparing lectures, assigning and grading homework assignments, designing and grading midterm and final exams, holding regular office hours and assigning grades that would be coordinated with a supervisor.*

### **Courses For Which I Have Been a Super TA**

Super TA, Algebraic Number Theory I, The University of Arizona, Fall 2011.

Super TA, Geometry-Topology Qualifying Exam Preparation, The University of Arizona, Summer 2010.

Super TA, Introduction to Proof, The University of Arizona, Spring 2009.

*As a super TA at the University of Arizona my responsibilities for these courses have included, holding regular office hours and review sessions as well as grading student homework.*

### **Conferences Attended**

*Arizona Winter School on Ramification and Geometry*, The University of Arizona, 10-14 March 2012.

*Workshop on Iwasawa Theory*, The University of Arizona, 15-16 October 2011.

*XXII Recontres Arithmetiques de Caen, Arithmetic Geometry over Function Fields*, Universite de Caen Bass-Normandie, France, 20-22 June 2011.

*Arizona Winter School on Stark-Heegner Points*, The University of Arizona, 12-16 March 2011.

*Arizona Winter School on Number Theory and Dynamics*, The University of Arizona, 13-17 March 2010.

*Arizona Winter School on Quadratic Forms*, The University of Arizona, 14-18 March 2009.

*Arizona Winter School on Special Functions and Transcendence*, The University of Arizona, 15-19 March 2008.

### **Service and Outreach**

Math Circle Participant, The University of Arizona, Fall 2011 & Spring 2012.

Organizer, Graduate Students in Number Theory and Algebraic Geometry Presenting Seminar, The University of Arizona, 15 April 2011.

### **Other Academic Activities**

Assistant, The Integration Workshop, The University of Arizona, Fall 2011.

Student Project Participant, Arizona Winter School on Number Theory and Dynamics, The University of Arizona, 13-17 March 2010. Worked on a project about Quantum Unique Ergodicity and Number Theory with the student group of Professor Kannan Soundararajan.

Research Tutorial Group Participant, The University of Arizona, Fall 2007. Worked on a project on determining the unit root of a family of Calabi-Yau varieties under the supervision of Professor Kirti Joshi.