Patrick Corn

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Education

- **University of California, Berkeley**
  Ph.D. in Mathematics, May 2005
  Thesis title: ***Del Pezzo surfaces and the Brauer-Manin obstruction***
  Thesis advisor: Bjorn Poonen
- **Harvard University**
  A.B., mathematics, *Summa cum laude*, 1998

Research Interests

- **Number theory, arithmetic geometry**: Rational points on varieties, computations and explicit methods. The Brauer-Manin obstruction on Del Pezzo and K3 surfaces. Torsion points on elliptic curves over number fields.

Papers

- **Computing torsion subgroups of CM elliptic curves over number fields**, in preparation.
- **Tate-Shafarevich groups and K3 surfaces II**, in preparation.
- **Tate-Shafarevich groups and K3 surfaces**, arXiv:0711.4436v1 [math.NT], accepted, *Math. Comp.*
- **The Brauer-Manin obstruction on Del Pezzo surfaces of degree 2**, *Proceedings of the LMS* 95 (2007), no. 3, 735–777
- **Del Pezzo surfaces and the Brauer-Manin obstruction**, Ph.D. thesis, U.C. Berkeley, 2005
- **Del Pezzo surfaces of degree 6**, *Mathematical Research Letters* 12 (2005), no. 1, 75–84
- **Classified report** (with Clifton Ealy, UC Berkeley), National Security Agency, August 1997

Teaching

- **Visiting assistant professor**, St. Mary's College of Maryland
  - **Instructor**, Math 151: Calculus; Math 482: Topics in Cryptology, Fall 2008
- **Postdoctoral associate**, University of Georgia
  - **Instructor**, Math 4400/6400: Number Theory, Spring 2008
  - **Instructor**, Math 4000/6000: Modern Algebra and Geometry, Fall 2007
  - **Instructor**, Math 8900: Commutative Algebra, Summer 2007
    A graduate reading course from Atiyah-Macdonald, with three graduate students
  - **Instructor**, Math 4450/6450: Cryptology and Computational Number Theory, Spring 2007

In addition to regular teaching duties, designed homework problems and directed papers and presentations given by students for graduate credit

- **Instructor**, Math 3000: Linear Algebra, Fall 2006
- **Instructor**, Math 2200: Calculus, Fall 2005, Spring 2007, Spring 2008

▶ **Graduate Student Instructor**, University of California, Berkeley

- **Instructor**, Math 185: Complex Analysis, Summer 2005
- **Instructor**, Math 1A: Calculus, Summer 2004
- **Instructor**, Math 1B: Calculus, Summer 2003
  Sole instructor for a class of approximately 30 students; responsible for designing and administering lectures, discussion sections, exams, and homework, and assigning grades
- **Teaching assistant**, Statistics 21: Introductory Probability and Statistics for Business, Fall 2003
  In addition to regular teaching assistant duties, designed worksheets for discussion sections and helped professor with administrative aspects of the course
- **Teaching assistant**, Statistics 20: Introduction to Probability and Statistics, Spring 2004
- **Teaching assistant**, Math 1A: Calculus (PDP), Spring 2003
- **Teaching assistant**, Math 1A: Calculus (PDP), Fall 2002
- **Teaching assistant**, Math 54: Linear Algebra and Differential Equations, Spring 2002
- **Teaching assistant**, Math 53: Multivariable Calculus, Spring 2000
- **Teaching assistant**, Math 1B: Calculus, Fall 1999

Selected Presentations

- ***Rational points on genus-2 curves and the Brauer-Manin obstruction***,
  Algebra/Number Theory Seminar, Emory University, October 2007
- ***The Brauer-Manin obstruction on surfaces***,
  Palmetto Number Theory Seminar, Clemson University, February 2007
- ***Del Pezzo surfaces and the Brauer-Manin obstruction***,
  AMS Special Session on Analytic Number Theory and Modular Forms, Fayetteville, November 2006
- ***The Brauer-Manin obstruction on surfaces***,
  Number Theory Seminar, University of South Carolina, October 2006
- ***Del Pezzo surfaces and the Brauer-Manin obstruction***,
  Number Theory Seminar, University of Georgia, September-October 2005 (series of four talks)
- ***Brauer-Manin obstructions on diagonal cubic surfaces***,
  Rational Points Seminar, UC Berkeley, September 2003
- ***The* 27 *lines on a cubic surface***,
  from the workshop "Rational and Integral Points on Higher-Dimensional Varieties,"
  American Institute of Mathematics, Palo Alto, CA, December 2002
- ***Dirichlet series and modular forms***,
  Modular Forms Seminar, UC Berkeley, February 2000

Mathematical Activities and Professional Experience

- **Reviewer**, *Math Reviews*, 2008-
- **Invited**, Workshop on "Arithmetic of K3 surfaces," BIRS, November-December 2008
- **Co-leader**, VIGRE seminar "Computations on CM elliptic curves over number fields," 2007-2008
  Run by Prof. Pete L. Clark and myself, this seminar was aimed at extending (via computational methods) what is known about the classification of torsion subgroups of CM elliptic curves
- **Participant**, "CMI Summer School on Arithmetic Geometry," Mathematisches Institut, Göttingen, Germany, June-August 2006.
- **Participant**, "Introductory Workshop in Rational and Integral Points on Higher-Dimensional Varieties" and "Cohomological Approaches to Rational Points," MSRI, spring 2006.
- **Participant**, "Méthodes explicites en théorie des nombres," Institut Henri Poincaré, Paris, September-December 2004.
- **Graduate Student Instructor**, Professional Development Program (PDP), UC Berkeley, 2002-2003
  A program for disadvantaged students, with extra responsibilities for instructors, including: additional time for office hours and discussion sections, independent design of course materials to emphasize group work in sections, meetings with PDP officials
- **Instructor**, Academic Summer Associates, UC Berkeley, Calculus, Summer 2001
- **Reader**, UC Berkeley (1999-2003): Complex Analysis, Galois Theory, Linear Algebra, Discrete Mathematics
- **Researcher**, Director's Summer Program, National Security Agency, Summer 1997
  Participants were given full security clearances and submitted reports on various problems of active interest to the National Security Agency
- **Teaching assistant**, Harvard University, 1995-1998: Complex Analysis, Algebra, Galois Theory, Linear Algebra, Multivariable Calculus, Calculus
- **Counselor**, Ross Young Scholars Program, Ohio State University, 1993-1995
  Details at `http://www.math.ohio-state.edu/ross/`

Competitions

- **Winner**, William Lowell Putnam Competition, 1997