

# Curriculum Vitae

FU LIU

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## Education/Employment:

- 2007 – Assistant Professor, University of California, Davis.
- 2007 Spring Krener Assistant Professor, University of California, Davis.
- 2006 Fall Postdoc Fellow, Member of the program *Computational Applications of Algebraic Topology*.
- 2002 – 2006 Ph.D. in Mathematics, Massachusetts Institute of Technology.
- 1999 – 2002 B.S. in Mathematics, California Institute of Technology.
- 1999 – 2002 B.S. in Engineering and Applied Science, concentrated in Computer Science, California Institute of Technology.

## Scientific/Academic Honors:

- 2011 – 2012 Hellman Fellowship, UC Davis.
- 2009 – 2011 NSA 2 year grant H98230-09-1-0029, National Security Agency.
- 2006 Clay Mathematics Institute Liftoff Fellowship
- 2006 Charles W. and Jennifer C. Johnson Prize, MIT
- 2002 Yao T. Li Fellowship, MIT
- 2002 Scott Russell Johnson Undergraduate Prize, Caltech
- 2001 Superior Performance on the 62nd William Lowell Putnam Mathematical Competition
- 2001 Herbert J. Ryser Scholarship, Caltech
- 2001 Summer Undergraduate Research Fellowship, Caltech
- 1997 – 1999 Yuxi Scholarship, Peking University
- 1996 Bronze medal in the 37th International Mathematical Olympiad

## Research Interests:

Enumerative Combinatorics and algebraic combinatorics.

## Thesis Title:

Contributions to the Theory of Ehrhart polynomials

## Published or Accepted papers:

available at <http://www.math.ucdavis.edu/~fuliu>

1. *Ehrhart polynomials of cyclic polytopes*, Journal of Combinatorial Theory Ser. A **111** (2005), no. 1, 111–127. arXiv:math.CO/0409337.
2. (with Brian Osserman) *Mochizuki's indigenous bundles and Ehrhart polynomials*, Journal of Algebraic Combinatorics **23** (2006), no. 2, 125–136.
3. (with Rosena R. X. Du)  *$(k, m)$ -Catalan numbers and hook length polynomials for plane trees*, European Journal of Combinatorics **28** (2007), no. 4, 1312–1321. arXiv:math.CO/0501147.
4. *Ehrhart polynomials of lattice-face polytopes*, Transactions of the American Mathematical Society **360** (2008), no. 6, 3041–3069. arXiv:math.CO/0512616.

5. (with Brian Osserman) *The irreducibility of certain pure-cycle Hurwitz spaces*, American Journal of Mathematics **130** (2008), no. 6, 1687–1708. arXiv:math.AG/0609118.
6. *Hook length polynomials for plane forests of a certain type*, Annals of Combinatorics, **13** (2009), no. 3, 315–322. arXiv:math.CO/0511055.
7. (with Jesus A. De Loera and Ruriko Yoshida) *A Generating Function for all Semi-Magic Squares and the Volume of the Birkhoff Polytope*, Journal of Algebraic Combinatorics, **30** (2009), no. 1, 113–139. arXiv:math.CO/0701866.
8. *A note on lattice-face polytopes and their Ehrhart polynomials*, Proceedings of the American Mathematical Society, **137** (2009), no. 10, 3247–3258. arXiv:0810.4655.
9. *Moduli of crude limit linear series*, International Mathematics Research Notices, **2009** (2009), no. 21, 4032–4050. arXiv:0902.4289.
10. *Combinatorial bases for multilinear parts of free algebras with two compatible brackets*, Journal of Algebra, **323** (2010), no.1, 132–166. arXiv:0808.3439.
11. *Higher integrality conditions, volumes and Ehrhart polynomials*, Advances in Mathematics, **226** (2011), no.4, 3467–3494. arXiv:0911.2051.

**Preprints:**available at <http://www.math.ucdavis.edu/~fuliu>

1. (with Rosena R. X. Du) *Pure-cycle Hurwitz factorizations and multi-noded rooted trees*. arXiv:1008.3677.

**Invited Talks:**

- 2010 Dec. *Special Session on Discrete Mathematics*, CMS meeting, Vancouver, British Columbia, Canada.  
 Nov. *Special Session on Convexity and Combinatorics*, AMS meeting, University of Richmond, Virginia.  
 Jun. *Combinatorics Seminar*, East China Normal University, Shanghai, P.R.China.  
 Apr. *Special Session on Geometric Combinatorics*, AMS meeting, University of New Mexico, Albuquerque.  
 Apr. *Combinatorics Seminar*, University of California, Berkeley.  
 Mar. *Discrete C.A.T.S. Seminar*, University of Kentucky, Lexington.  
 Mar. *Clifford Lectures*, Tulane University, New Orleans.
- 2009 Dec. *Combinatorics Seminar*, University of Washington.  
 Oct. *Workshop: Combinatorial Geometry*, IPAM.
- 2008 Dec. *Combinatorics Seminar*, East China Normal University, Shanghai, P.R.China.  
 Dec. *Combinatorics and Discrete Dynamical Systems*, SMS-AMS meeting, Fudan University, Shanghai, P.R. China.
- 2007 Apr. *Bay Area Discrete Math Day*, San Francisco State University.  
 Apr. *Colloquium*, University of California, Davis.  
 Mar. *Algebra-Geometry-Combinatorics Seminar*, San Francisco State University.
- 2006 Nov. *Special Session on Algebraic Combinatorics*, AMS meeting, University of Arkansas, Fayetteville.  
 Oct. *Topological Combinatorics Seminar*, MSRI.  
 Sep. *Postdoc Seminar*, MSRI.  
 Jun. *Formal Power Series and Algebraic Combinatorics*, University of California, San Diego.  
 Apr. *Special Session on Enumerative Aspects of Polytopes*, AMS meeting, San Francisco State University.  
 Jan. *Discrete Mathematics & Representation Theory Seminar*, University of California, Davis.

- 2005 Jun. *Formal Power Series and Algebraic Combinatorics*, University of Messina, Italy.  
 Jun. *P-doc Seminar*, Institut Mittag-Leffler, Sweden.  
 May *Institute Seminar*, Institut Mittag-Leffler, Sweden.  
 Apr. *Algebra-Geometry-Combinatorics Seminar*, San Francisco State University.  
 Feb. *Combinatorics seminar*, University of California, Berkeley.
- 2004 Jun. *Kyoto University/RIMS joint Number Theory Seminar*, Kyoto, Japan.  
 May *Combinatorics Seminar*, Massachusetts Institute of Technology.

### Professional Activities:

- Journals refereed:

Annals of Combinatorics	Ars Combintoria
Bulletin of ICA	Discrete Mathematics
Linear Algebra and Its Applications	SIAM Journal on Discrete Mathematics

- Organization:

Member of the Bay Area Discrete Math Day Committee: fall 2007 to spring 2010.  
 Member of the organization committee for FPSAC, summer 2010  
 Member of the program committee for FPSAC, summer 2010  
 UC Davis Algebra and Discrete Math Seminar, fall 2008, spring 2009, and fall 2009.

### Teaching Activities:

At the University of California, Davis:

2011 Winter **Calculus II, Sections C01-C02**  
 2011 Winter **Linear Algebra, Section 1**  
 2010 Fall **Enumerative Combinatorics**  
 2010 Winter **Calculus I, Sections A01-A05**  
 2010 Winter **Intro to Abstract Math**  
 2009 Spring **Calculus III, Sections C01-C04**  
 2008 Fall **Intro to Abstract Math**  
 2008 Spring **Short Calculus B, Section 002**  
 2007 Fall **Math and Computers**  
 2007 Spring **Calculus III, Sections C01-C03**  
 2007 Spring **Calculus: Vector Analysis, Sections A01-A02**

### Professional Membership:

2002 – American Mathematical Society.  
 2001 – Tau Beta Pi.