

## Edward D. Kim

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### Education

B.A., Mathematics. December 2004.  
University of California, Berkeley.

M.A., Mathematics. March 2007.  
University of California, Davis.

Ph.D. student, Mathematics. August 2005 – Present.

*Ph.D. expected June 2010*

University of California, Davis.

Advisor: Jesús A. De Loera.

*Thesis: Geometry and Combinatorics of Convex Polytopes and Applications to Optimization*

### Publications

- J. A. De Loera, E. D. Kim, S. Onn, F. Santos. Graphs of Transportation Polytopes. *J. Combin. Theory Ser. A*, 116(8):1306-1325, 2009. [arXiv:0709.2189](https://arxiv.org/abs/0709.2189)
- E. D. Kim and F. Santos. An update on the Hirsch conjecture: Fifty-two years later. *J. der Deutschen Mathematiker-Vereinigung*. (to appear). [arXiv:0907.1186](https://arxiv.org/abs/0907.1186)
- A. Gundert, E. D. Kim, and D. Schymura. Lattice paths and Lagrangian matroids. (in preparation).

### Selected Presentations

- Workshop on Geometric and Topological Combinatorics. Universidad de Alcalá. Madrid (Spain). August 31 – September 5, 2006. (Presented poster.)
- Graduate Student Combinatorics Conference 2007. Graphs of Transportation Polytopes. University of Washington. Seattle, WA (USA). April 22, 2007.
- “Semidefinite relaxation of the max-cut problem.” MSRI Workshop on Continuous Optimization and its Applications. Mathematical Sciences Research Institute. Berkeley, CA (USA). July 17, 2007.
- MAA Section Meeting (Northern California, Nevada, Hawaii). Sacramento State University. Sacramento, CA (USA). March 1, 2008. (Presented poster.)
- UC Davis SIAM Student Research Conference. University of California, Davis. Davis, CA (USA). May 2–3, 2008. (Presented poster.)
- MIP 2008. Columbia University. New York, NY (USA). August 4–7, 2008. (Presented poster.)
- “Recent bounds on transportation polytopes.” Centre de Recerca Matemàtica Doc-Course. Universitat Politècnica de Catalunya. Barcelona (Spain). January 15, 2009.

## Teaching

Teaching Assistant Fall 2005 Mathematics 22B: Differential Equations	University of California, Davis
Teaching Assistant Winter 2006 Mathematics 21B: Calculus, Second Course	University of California, Davis
Associate Instructor Summer 2006 Mathematics 21C: Calculus, Third Course <i>Prepared lectures, examinations and exercises for thirty students. Managed student relationships with the homework reader. Assessed student work for homework and examinations. Determined final grades.</i>	University of California, Davis
Teaching Assistant Fall 2006 Mathematics 165: Ideals, Varieties, and Algorithms	University of California, Davis
Teaching Assistant Fall 2007 Mathematics 165: Ideals, Varieties, and Algorithms	University of California, Davis
Teaching Assistant Spring 2008 Mathematics 21C: Calculus, Third Course	University of California, Davis
Teaching Assistant Spring 2008 Mathematics 250C: Graduate Algebra, Third Course	University of California, Davis

## Special Courses Attended

- **Advanced Course on Combinatorial and Computational Geometry: trends and topics for the future.** Universidad de Alcalá. Madrid (Spain). August 31 – September 5, 2006.
- **Algebraic Algorithms in Optimization.** Institute for Mathematics and its Applications, University of Minnesota. Minneapolis, MN (USA). January 12 – 13, 2007.
- **Continuous Optimization and Applications.** Mathematical Sciences Research Institute. Berkeley, CA (USA). July 9 – 20, 2007.
- **Applicable Algebraic Geometry.** Institute for Mathematics and its Applications participating institutions summer program for graduate students. Texas A&M University. College Station, TX (USA). July 23 – August 10, 2007.
- **I-Math Winter School: DocCourse Combinatorics and Geometry 2009.** Centre de Recerca Matemàtica. Barcelona (Spain). January 8–March 27, 2009.

- **Combinatorics Tutorials.** Institute for Pure and Applied Mathematics. Los Angeles, CA (USA). September 9–16, 2009.

### Awards and Fellowships

NSF VIGRE Research Fellowship University of California, Davis  
Summer 2006 – 2009

Developed **transax** and **transplan**, software for the enumeration of all nondegenerate axial and planar transportation polytopes of specified table size.

Travel Fellowship Institute for Mathematics and its  
Applications  
July 23 – August 10, 2007

Full housing and travel support by the Institute for Mathematics and its Applications for the 2007 Summer program for graduate students at Texas A&M University.

Travel Fellowship Centre de Recerca Matemàtica  
January 8–March 27, 2009

Full housing and stipend support by the Centre de Recerca Matemàtica for the 2009 Winter DocCourse in Combinatorics and Geometry.

### Community Outreach

Instructor UC Davis Explore Math Program  
Winter 2007  
Davis, CA (USA)

Instructor for the UC Davis Math Circle, a weekend outreach program for twenty high school students. Developed curriculum for my own course. Mentored two undergraduate students interested mathematics education, giving individual feedback to improve their teaching skills.

### Conferences Organized

- Co-organizer of the GSCC 2008: Graduate Student Combinatorics Conference 2008. University of California, Davis. Davis, CA (USA). April 12–13, 2008.

### Service

Webmaster 2006 – 2009  
*UC Davis Galois Group*

<http://galois.math.ucdavis.edu/>

Web development for the math graduate student organization.

Undergraduate Program Committee 2008 – Present  
Davis, CA (USA)  
Representative to department committee for the UC Davis Galois Group.

Webmaster  
*WetsFest*  
<http://www.math.ucdavis.edu/~ekim/wetsfest/>

Webmaster for Symposium in honor of Professor Roger J-B Wets on the occasion of his retirement

Webmaster

*Algebra and Topology in Interaction*

<http://www.math.ucdavis.edu/~ekim/fuchsalgetopcon/>

Webmaster for UC Davis - MSRI Conference in honor of Professor Dmitry Fuchs on the occasion of his 70th Anniversary

### **Professional Memberships**

- American Mathematical Society
- Association for Women in Mathematics
- Mathematical Association of America
- Society for Industrial and Applied Mathematics

### **Languages**

- Languages: English (native), Korean (intermediate), French and Spanish (reading)
- Computer Languages: C++, L<sup>A</sup>T<sub>E</sub>X, PHP, SQL and XHTML