

Hao Huang

- CONTACT INFORMATION** Institute for Advanced Study
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- RESEARCH INTERESTS** Extremal combinatorics, random structures, spectral graph theory, structural graph theory and theoretical computer science.
- EMPLOYMENT** **2012–:** Postdoctoral member, **Institute for Advanced Study**, Princeton and **DIMACS**, Rutgers.
- EDUCATION** **2007–2012: University of California, Los Angeles**, California, USA
- Ph.D., Mathematics, Jun 2012.
Thesis Advisor: Professor Benjamin Sudakov
 - 2003–2007: Peking University**, Beijing, China
 - B.S., Mathematics, July 2007.
- PUBLICATIONS AND PREPRINTS**
- A counterexample to Alon-Saks-Seymour Conjecture (with B. Sudakov), *Combinatorica*, 32 (2012), 205–219.
 - Bandwidth theorem for random graphs (with C. Lee and B. Sudakov), *Journal of Combinatorial Theory, Series B.*, 102 (2012), 14–37.
 - Quasi-randomness of graph balanced cut properties (with C. Lee), *Random Structures and Algorithms*, 41 (2012), 124–145.
 - Nonnegative k -sums, fractional covers and probability of small deviations (with N. Alon and B. Sudakov), *Journal of Combinatorial Theory, Series B.*, 102 (2012), 784–796.
 - Large matchings in uniform hypergraphs and the conjectures of Erdős and Samuels (with N. Alon, P. Frankl, V. Rödl, A. Ruciński, B. Sudakov), *Journal of Combinatorial Theory, Series A*, 119 (2012), 1200–1215.
 - The size of a hypergraph and its matching number (with P. Loh and B. Sudakov), *Combinatorics, Probability and Computing*, 21 (2012), 442–450.
 - Large feedback arc sets, high minimum degree subgraphs, and long cycles in Eulerian digraphs

(with J. Ma, A. Shapira, B. Sudakov and R. Yuster), *Combinatorics, Probability and Computing*, 22 (2013), 859–873.

- A problem of Erdős on the minimum number of k -cliques
(with S. Das, J. Ma, H. Naves, B. Sudakov), *Journal of Combinatorial Theory, Series B*, 103 (2013), 344–373.
- On the densities of cliques and independent sets in graphs
(with N. Linial, H. Naves, Y. Peled, and B. Sudakov), to appear in *Combinatorica*.
- On the 3-local profiles of graphs
(with N. Linial, H. Naves, Y. Peled, and B. Sudakov), to appear in *Journal of Graph Theory*.
- On the maximum induced density of directed stars and related problems, to appear in *SIAM Journal on Discrete Mathematics*.
- The minimum number of nonnegative edges in hypergraphs
(with B. Sudakov), submitted.
- Maximizing the number of nonnegative subsets
(with N. Alon), submitted.

INVITED TALKS

- AMS Joint Mathematics Meeting, Baltimore, Jan 2014
- DIMACS Mixer Seminar, Rutgers University, Nov 2013
- Combinatorics seminar, Emory University, Atlanta, Nov 2013
- Graph Theory Seminar, Georgia Tech, Atlanta, Nov 2013
- Theory Seminar, NYU-Polytechnic, NYC, Oct 2013
- Discrete Mathematics Seminar, Rutgers University, Piscataway, Oct 2013
- ACO Seminar, Carnegie Mellon University, Pittsburgh, Oct 2013
- MIT Combinatorics Seminar, Cambridge, MA, May 2013
- Computer Science/Discrete Mathematics Seminar, IAS, Mar 2013
- Discrete Mathematics Seminar, Rutgers University, Piscataway, Feb 2013
- Discrete Math Seminar, Columbia University, New York, Feb 2013
- Workshop "Extremal and Probabilistic Combinatorics", LA, Jan 2013
- ACO Seminar, Carnegie Mellon University, Pittsburgh, Oct 2012
- Discrete Mathematics Seminar, Princeton University, Oct 2012
- Computer Science/Discrete Mathematics Seminar, IAS, Oct 2012
- Short Talks by Postdoctoral Members, IAS, Sep 2012
- Conference "New Trend and Directions in Combinatorics", Banff, Aug 2012
- Combinatorics Seminar, University of Cambridge, May 2012
- Combinatorial Theory Seminar, University of Oxford, May 2012
- Combinatorics Seminar, Queen Mary University of London, May 2012
- Combinatorics Seminar, Georgia Tech, Atlanta, Apr 2012
- Combinatorics Seminar, UCLA, Los Angeles, Feb 2012
- Combinatorics Seminar, UCSD, La Jolla, California, Oct 2011

- Lake Arrowhead Reunion Conference, Jun 2011
- 15th International Conference on Random Structures and Algorithms, Emory University, May 2011
- Algebra/Number Theory/Combinatorics Seminar, Claremont Colleges, May 2011
- AMS Spring Western Sectional Meeting, UNLV, Las Vegas, May 2011
- Combinatorics Seminar, UCLA, Los Angeles, Apr 2011
- ACO Seminar, Carnegie Mellon University, Dec 2010
- AMS Fall Western Sectional Meeting, UCLA, Oct 2010
- Discrete Math Seminar, San Marcos, Texas, Jul 2010
- SIAM Conference on Discrete Mathematics (DM10), Austin, Texas, Jun 2010
- Combinatorics Seminar, UCSD, La Jolla, California, May 2010
- Combinatorics Seminar, UCLA, Los Angeles, Apr 2010

HONORS AND
AWARDS

- AMS–Simons Travel Grant, 2012–2014.
- UCLA Dissertation Year Fellowship, 2011–2012.
- Wang-Yang Academician Fellowship (2006–2007), China.
- Hosogoe Fellowship (2005–2006), China.
- Guanghua Fellowship (2004–2005), China.
- Freshman Fellowship (2003–2004), China.
- Prizes in ACM/ICPC programming contest, 2004–2005.
- Silver and gold medals at the 2002, 2003 Chinese Mathematical Olympiad.

CONFERENCES
ATTENDED

- Oberwolfach Arbeitsgemeinschaft “Limits of Discrete Structures”, Mar 2013.
- Workshop “Extremal and Probabilistic Combinatorics”, LA, Jan 2013
- Workshop on computation and phase transitions, Georgia Tech, Jun 2012
- Paul Erdős memorial lecture series, Memphis, May 2012
- Memphis-Budapest Summer School in combinatorics, Budapest, Aug 2011
- IPAM Reunion Workshop, Lake Arrowhead, Jun 2011
- 15th International Conference on Random Structures and Algorithms, Emory University, May 2011
- AMS Spring Western sectional meeting, UNLV, Apr 2011
- Hypergraph Turán problem workshop, AIM, Mar 2011
- AMS Fall Western Sectional meeting, UCLA, Oct 2010
- SIAM conference on Discrete Mathematics, Austin, Jun 2010
- Combinatorics: Methods and Applications in Mathematics and Computer Sciences, IPAM, Sep–Dec 2009

TEACHING
EXPERIENCE

Rutgers Department of Mathematics, Piscataway, NJ, USA

Instructor

- Math 453: Theory of Linear Optimization, Fall 2013

UCLA Department of Mathematics, Los Angeles, CA, USA

Teaching Assistant

- Math 133: Introduction to Fourier Analysis, Spring 2010
- Math 132: Complex Analysis for Applications, Winter 2011

- Math 180: Combinatorics, Fall 2010
- Math 133: Introduction to Fourier Analysis, Spring 2010
- Math 132: Complex Analysis for Applications, Winter 2010
- Math 132: Complex Analysis for Applications, Fall 2009
- Math 32A: Calculus of Several Variables, Spring 2008
- Math 113: Combinatorics, Winter 2008

SERVICE

- Co-organizer of the Discrete math seminar in Rutgers University.
- Reviewer for *Mathematical Reviews*.
- Referee for the following journals:
 - *Central European Journal of Mathematics* (2)
 - *Combinatorica*
 - *Discrete Mathematics* (2)
 - *Discussiones Mathematicae Graph Theory*
 - *Electronic Journal of Combinatorics* (3)
 - *European Journal of Combinatorics*
 - *Journal of Combinatorial Theory, Series A* (3)
 - *Journal of Combinatorial Theory, Series B*
 - *Journal of Combinatorics* (4)
 - *Journal of Graph Theory* (3)
 - *SIAM Journal on Discrete Mathematics*.