

Jeong-Hyun Kang

Basic Information

- The Department of Mathematics, University of West Georgia
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- Webpage: www.westga.edu/~jkang
- Visa status: Permanent residency

Employment and Education

- Associate Professor, Department of Mathematics, University of West Georgia, 2011 – present
- Assistant Professor, Department of Mathematics, University of West Georgia, 2006 – 2011
- Postdoctoral Fellow, Department of Mathematics, University of Central Florida, 2004 – 2006
- Ph.D, Department of Mathematics, University of Illinois at Urbana-Champaign, 2004
Dissertation: Covering and coloring of metric spaces, and $L(2, 1)$ -labeling of graphs
Advisor: Professor Zoltán Füredi
Teaching Assistant, Research Assistant, 1997–2004

Teaching Experience

- ASSOCIATE PROFESSOR, University of West Georgia, Fall 2011 – Present
- ASSISTANT PROFESSOR, University of West Georgia, Fall 2006 – Spring 2011
 - Independent Study on Linear Algebra, Graduate level
 - Math 6983 Research Project (Supervision of master research thesis)
 - Math 6513 Applied Linear Algebra (Graduate course)
 - Math 4513/5513 Linear Algebra I
 - Math 4043/5043 Number Theory
 - Math 3003 Transition into Advanced Mathematics
 - Math 2654 Calculus III
 - Math 2009 Sophomore Seminar
 - Math 1634 – Honors, Calculus I
 - Math 1634 Calculus I
 - Math 1413 Survey of Calculus
 - Math 1111 College Algebra
- POSTDOCTORAL FELLOW, University of Central Florida, Fall 2004 – Spring 2006
 - Abstract Algebra (Graduate course)
 - Number Theory (Advanced undergraduate course)

- Calculus I
- TEACHING ASSISTANT, University of Illinois at Urbana-Champaign, Fall 1997 – Spring 2004
 - Instructor for the following courses with full responsibility:
 - Multivariable Calculus (Calculus III)
 - Introductory Linear Algebra
 - Calculus II
 - Calculus for Social Scientists
 - TA for the following advanced undergraduate courses with various responsibilities, including grading, office hours, and occasional lectures:
 - Probability, Linear Algebra, Combinatorics, Graph Theory
- Co-author of proposal for graduate course on *Discrete and Convex Geometry* in May 2003.
- Nominee for the department *Teaching Award* in Spring 2004.

Research Interests

My research interests are in the realm of discrete mathematics. I have worked on a long standing problem in combinatorial geometry related to coloring of metric spaces and its variations, using methods from discrete geometry and probabilistic combinatorics. I also have worked on a distance graph problem on the set of integers that has a flavor of combinatorial number theory. I also have various results on a central conjecture in $L(2, 1)$ -labeling of graphs, a generalization of ordinary graph coloring motivated by the channel assignment problem.

In addition, I am interested in and working on other problems from combinatorial geometry, extremal graph theory, combinatorial number theory, and intersecting set-system.

Papers and Publications

- Distance graphs from p-adic norms, *Integers—Electronic Journal of Combinatorial Number Theory*, 10 (2010) 379–392. (with H. Maharaj)
- Covering n -space by convex bodies and its chromatic number, *Discrete Mathematics, Special issue in honor of M. Simonovits*, 308 (2008), 4495–4500. (with Z. Füredi)
 - * Referenced in the Springer monograph ‘Research Problems in Discrete Geometry’ by Brass, Moser, Pach.
- $L(2,1)$ -labeling for Hamiltonian graphs of maximum degree 3, *SIAM Journal on Discrete Mathematics*, 22 (2008), 213–230.
- Distance graph on \mathbb{Z}^n with ℓ_1 -norm, *Theoretical Computer Science, Special issue on Combinatorics of the Discrete Plane and Tilings*, 319 (2004), 357–366. (with Z. Füredi)
 - * Referenced in the Springer monograph ‘Research Problems in Discrete Geometry’ by Brass, Moser, Pach.

- Rectilinear equidistant sets in \mathbb{R}^d , manuscript.
- On largeness and accessibility, manuscript.
- Distance graph on \mathbb{Z}^n with several distances under ℓ_1 -norm, (*tentative title*), manuscript, soon to be submitted. (with H. Maharaj and S. Anderson)
- Distance graphs on the integer line, preprint. (with H. Maharaj)
- On the structure of p -adic distance graphs, preprint. (with H. Maharaj)
- L(2,1)-labeling and packing of bipartite graphs, preprint. (with Z. Füredi)
- L(2,1)-labeling for Kneser Graphs, preprint.
- Security number for Kneser Graphs, preprint.

Conference Presentations

- KNU-PNU-PMI ALGEBRAIC COMBINATORICS SEMINAR, *Invited talk*, Dae-gu, South Korea, June 2010
- AMS SPECIAL SESSION ON GRAPH THEORY, *Invited talk*, National Meeting, San Diego, California, Jan. 2008
- INTEGERS CONFERENCE, Carrollton, Georgia, Oct. 2007
- AMS SESSION ON GRAPH THEORY, *Invited talk*, Central Section Meeting, Chicago, Illinois, Oct. 2007
- AMS NATIONAL MEETING, San Antonio, Texas, Jan. 2006
- MIDSUMMER WORKSHOP ON EXTREMAL COMBINATORICS, *Invited talk*, Charles University, Prague, Czech Republic, Aug. 2005
- AMS NATIONAL MEETING, Phoenix, Arizona, Jan. 2004
- 17TH MCCCC (MIDWEST CONFERENCE ON COMBINATORICS, CRYPTOGRAPHY, AND COMPUTING), Las Vegas, Nevada, Nov. 2003
- AMS SPECIAL SESSION IN GRAPHS AND DIGRAPHS, Joint Central and Western Section Meeting, Boulder, Colorado, Oct. 2003
- CONFERENCE ON EXTREMAL GRAPH THEORY, DEDICATED TO THE 60TH BIRTHDAY OF MIKLOS SIMONOVITS, Rényi Institute of Hungarian Academy of Sciences, Balaton, Hungary, June 2003
- MIGHTY MEETINGS (MIDWEST GRAPH THEORY CONFERENCE), Valparaiso, Indiana, Sep. 2003; Normal, Illinois, Sep. 2002

Seminar/Colloquium Talks

- TRINITY COLLEGE, April 2011
- GEORGIA SOUTHERN UNIVERSITY, Feb. 2010
- GEORGIA STATE UNIVERSITY, Nov. 2007
- UNIVERSITY OF WEST GEORGIA, Fall 2006 – present (Several talks)
- CLEMSON UNIVERSITY, March 2006
- UNIVERSITY OF FLORIDA, March 2006
- UNIVERSITY OF CENTRAL FLORIDA, Fall 2004 – Spring 2006 (Several talks)
- ILLINOIS STATE UNIVERSITY, Feb. 2004
- RÉNYI INSTITUTE OF HUNGARIAN ACADEMY OF SCIENCES, Budapest, Hungary, April 2003, Nov. 2000
- UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, 2000–2003 (Several talks)

Academic Services

- REFEREE FOR THE JOURNALS : Journal of Combinatorial Optimization, Discrete Mathematics, Information Processing Letters, Integers–Electronic Journal of Combinatorial Number Theory, Theoretical Computer Science, Networks
- CHAIR, AMS Session on Combinatorics, National Meeting, Phoenix, Arizona, Jan. 2004
- CO-HOST, Integers Conference, Carrollton, Georgia, Oct. 2007, Oct. 2009

Departmental Services

- Committees in
 - Facilities Committee – *Chair*, Fall 2009 – present
 - Ad-Hoc Committee for Independent Studies – *Chair*, Fall 2009 – Spring 2010
 - Facilities Committee, Fall 2006 – Spring 2009
 - Strategic Planning Committee, Spring 2008 – present
 - Graduate Committee, Fall 2010 – present
 - CAMS Committee, Fall 2008 – present
 - Seminar/Colloquium, Fall 2006 – Spring 2008
 - Search Committee, Fall 2007 – Spring 2008
 - Liaison to Honors College, Fall 2006 – present
- Took over the last quarter of the 4 credit hour class *without teaching credit* when the faculty member who was in the charge of the class went under surgery and couldn't continue teaching, Fall 2007

- Math Day (An activity for high school students), 2007 – 2010
- Counseling/Advising undergraduate and graduate math major students

University Services

- Committees in
 - Senate, Student Life, Summer 2010 – Spring 2010
 - Senate, Faculty and Administrative Staff Personnel, Dec. 2009 – Spring 2010
- Thesis Committee Member for Christine James, Ed.S, Spring 2009

Professional Societies

- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)