

Hyun Kwon

Curriculum Vitae

November 2011

PDE and Functional Analysis Research Center (PARC)
Department of Mathematical Sciences
Seoul National University
San 56-1, Shinrim-dong
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Education

Brown University, Providence, RI

Ph.D. in Mathematics, May 2008

Thesis Title: Similarity of Operators and Geometry of Eigenvector Bundles

Thesis Advisor: Sergei Treil

Sc.M. in Mathematics, May 2004

Seoul National University, Seoul, Korea

B.Sc. in Mathematics, February 2001 (cum laude)

Employment

Postdoctoral Fellow, PARC, Seoul National University, March 2010- present

Postdoctoral Fellow, Brain Korea for the 21st century government program, Ewha Womans University, June 2009- February 2010

Visiting Assistant Professor of Mathematics, Brown University, July 2008- May 2009

Research Interests

Functional Analysis, Harmonic Analysis, Operator Theory, Complex Analysis

Awards

1. TJ Park Science Fellowship, POSCO TJ Park Foundation (March 2011-present): one of the three postdoctoral fellows in Mathematics to be endowed with research funds till the February of 2013 from POSCO, a major steel company
www.posco.com & www.postf.org/eng/
2. Young Investigator Award, Texas A & M University (summer 2009): supported by the National Science Foundation, granted \$7,500
3. Dissertation Fellowship, Brown University Graduate School (spring 2008)
4. Member, Sigma Xi, The Scientific Research Society (2003-2008)
5. University Fellowship, Brown University Graduate school (2002-2003)
6. Departmental Fellowship, Seoul National University (1999-2001)

7. University Fellowship, Seoul National University (1998)
8. Engineering Medal, The George Washington University School of Engineering and Applied Science (1995): awarded while in high school

Grants

1. NRF (the Korean equivalent of the NSF) 5-year Grant (September 2010-present): An Interdisciplinary Approach to the Similarity Problem, Principal Investigator
2. Travel Grant, Korean Women in Mathematical Sciences (summer 2010)
3. Travel Grant, Brown University Graduate School (spring 2008, summer 2007)

Publications

1. *Similarity of operators and geometry of eigenvector bundles* (with S. Treil), Publ. Mat., Vol. 53 (2009), no. 2, 417-438.
2. *Curvature condition for noncontractions does not imply similarity to the backward shift* (with S. Treil), Integr. Equat. Oper. Th., Vol. 66 (2010), no. 4, 529-538.
3. *Curvature invariant and canonical generalized operator models - I* (with R. G. Douglas, Y. Kim, and J. Sarkar), to appear in Operator Theory: Advances and Applications, Birkhauser, Basel.
4. *Curvature invariant and canonical generalized operator models - II* (with R. G. Douglas, Y. Kim, and J. Sarkar), preprint.
5. *Similarity of operators in the Bergman space setting* (with R. G. Douglas and S. Treil), preprint.
6. *Curvature invariant and canonical generalized operator models - III* (with R. G. Douglas and J. Sarkar), in preparation.
7. *Boundedness of dyadic paraproducts on matrix-weighted L^p* (with J. Isralowitz), in preparation.
8. *Invertible Toeplitz products with matrix-valued symbols* (with J. Isralowitz), in preparation.

Certifications

1. Sheridan Center Teaching Certificate 1 : awarded to graduate students after participating in teaching seminars, group discussions and having your teaching observed by teaching consultants at the Harriet W. Sheridan Center for Teaching and Learning of Brown University, May 2005.
2. Teaching Certificate for Secondary School Education in Mathematics : awarded by the Ministry of Education of Korea after taking education and mathematics education courses and working as a practice teacher at a high school for a month, February 2001.
3. Certificate of Proficiency in English Translation 3: awarded by the Korea Herald, an English-language newspaper, after passing an English Translation Approval Test, September 1999.

Education Experiences

- fall 2011 **Guest Evaluator** Korea Institute for Curriculum and Evaluation
accepted the invitation by the Korea Institute for Curriculum and Evaluation to help evaluate the mathematical abilities of secondary school students
- spring 2011 **Instructor** Seoul National University
Math 881.007 004 Linear Algebra (for non-math majors)
- fall 2010 **Instructor** Seoul National University
Math 010.102 029 Calculus II (multivariable calculus- course taught in English)
- spring 2010 **Instructor** Seoul National University
Math 010.101 009 Calculus I (integral calculus)
- fall 2009 **Instructor** Ewha Womans University
Topics Course in Functional Analysis
- spring 2009 **Instructor** Brown University
Math 0100 Introductory Calculus 2 (integral calculus)
- fall 2008 **Instructor** Brown University
Math 0520 Linear Algebra
- fall 2007 **Teaching Assistant** Brown University
Math 0180 Intermediate Calculus (multivariable calculus)
Grader (volunteer work) Brown University
Math 1130 Functions of Several Variables
- spring 2007 **Teaching Assistant** Brown University
Math 1260 Complex Analysis
- fall 2006 **Teaching Fellow** Brown University
Math 0090 Introductory Calculus 1 (differential calculus)
*** Teaching Fellows are graduate students who are instructors for one section of a course. They teach under the supervision of a professor who is the head instructor.
- fall 2005 **Teaching Fellow** Brown University
Math 0100 Introductory Calculus 2
- spring 2005 **Teaching Fellow** Brown University
Math 0100 Introductory Calculus 2
- fall 2004 **Teaching Fellow** Brown University
Math 0100 Introductory Calculus 2
- spring 2004 **Teaching Assistant** Brown University
Math 0090 Introductory Calculus 1
Grader (volunteer work) Brown University
Math 1610 Probability
- fall 2003 **Teaching Assistant** Brown University
Math 0100 Introductory Calculus 2
- May 2000 **Practice Teacher** Kwachon High School, Kwachon, Korea
Precalculus

Conferences

1. (upcoming) Joint Mathematics Meetings, Haynes Convention Center, Boston, MA, January 4-7, 2012, participant.
2. (upcoming) Winter School on Operator Theory & Operator Algebras, JEI Learning Centers, Chonan, Korea, December 20-23, 2011, invited lecturer.
3. (upcoming) Recent Developments in Mathematical Analysis and Related Fields, SNU-HU Joint Symposium in Mathematics, Seoul, Korea, November 16-17, participant.
4. Texas A & M Workshop in Analysis and Probability, Texas A & M University, College Station, TX, July 9-August 1, 2011, participant.
5. International Workshop on Operator Theory and its Applications (IWOTA), Universidad de Sevilla, Seville, Spain, July 4-8, 2011, participant.
6. The 8th Korean Women in Mathematical Sciences International Conference, KIAS, Korea, June 20-21, 2011, invited participant.
7. PARC Workshop 2011- Operator Theory and its Applications Conference, Seoul National University, Seoul, June 17, 2011, participant.
8. The 1st POSCO TJ Park Fellow Workshop in Mathematics, The Hilton, Nam-Hae, May 21-22, 2011, participant.
9. Joint Mathematics Meetings, New Orleans Marriott & Sheraton New Orleans, New Orleans, LA, January 6-9, 2011, participant.
10. Winter School on Operator Theory & Operator Algebras, JEI Learning Centers, Chonan, Korea, December 20-23, 2010, participant.
11. Texas A & M Workshop in Analysis and Probability, Texas A & M University, College Station, TX, July 21-August 2, 2010, participant.
12. The 7th International Workshop for Korean Women in Mathematics, Chungnam National University, Daejeon, Korea, June 21-22, 2010, participant.
13. KOTAC International Conference 2010 Operator Theory and its Applications, Incheon University, Incheon, Korea, June 18-19, 2010, participant.
14. Great Plains Operator Theory Symposium (GPOTS) 2010, University of Denver, Denver, CO, June 14-17, 2010, participant.
15. Joint Meeting of the Korean Association of Mathematical Societies, Chungnam National University, Daejeon, Korea, April 24-25, 2010, participant.
16. Joint Meeting of the AMS and the Korean Mathematical Society, Ewha Womans University, Seoul, Korea, December 16-20, 2009, invited participant.
17. Texas A & M Workshop in Analysis and Probability, Texas A & M University, College Station, TX, July 9-August 11, 2009, invited Visiting Scholar.
18. KOTAC International Conference 2009 Operator Theory and its Applications, Kyungpook National University, Daegu, Korea, June 18-20, 2009, participant.
19. Texas A & M Workshop in Analysis and Probability-A Concentration Week on Multivariable Operator Theory, Texas A & M University, College Station, TX, July 28-August 1, 2008, participant.
20. International Workshop on Operator Theory and its Applications (IWOTA), College of William and Mary, Williamsburg, VA, July 22-26, 2008, participant.
21. Southeastern Analysis Meeting (SEAM), Vanderbilt University, Nashville, TN, March 5-9, 2008, invited participant.
22. Workshop on Recent Advances in Operator Theory and Function Theory, Fields Institute, Toronto, Canada, January 7-11, 2008, invited Scientific Researcher.
23. Informal Regional Functional Analysis Seminar (SUMIRFAS), Texas A & M University, College Station, TX, August 10-12, 2007, participant.

24. Informal Regional Functional Analysis Seminar (SUMIRFAS), Texas A & M University, College Station, TX, August 5-7, 2005, participant.
25. International Workshop on Operator Theory and its Applications (IWOTA), University of Connecticut, Storrs, CT, July 24-27, 2005, participant.

Talks

1. (upcoming) Special Session on Several Complex Variables and Multivariable Operator Theory (tentative) & Contributed Session, Hayes Convention Center, January 7, 2012.
2. (upcoming) Winter School on Operator Theory & Operator Algebras, JEI Learning Centers, Chonan, Korea, December 20-23, 2011 (invited lecturer).
3. (upcoming) Recent Developments in Mathematical Analysis and Related Fields, SNU-HU Joint Symposium in Mathematics, Seoul, Korea, November 17, 2011.
4. International Workshop on Operator Theory and its Applications (IWOTA), Universidad de Sevilla, Seville, Spain, July 8, 2011.
5. Special Session in Analysis, The 8th Korean Women in Mathematical Sciences International Conference, KIAS, Seoul, Korea, June 21, 2011 (invited speaker).
6. The 1st POSCO TJ Park Fellow Workshop in Mathematics, The Hilton, Nam-Hae, Korea, May 21, 2011.
7. Operator Algebras & Operator Theory Seminar, Seoul National University, Seoul, Korea, April 15, 2011.
8. Analysis Seminar, KAIST, Daejeon, Korea, December 1, 2010 (invited speaker).
9. Operator Algebras & Operator Theory Seminar, Seoul National University, Seoul, Korea, October 29, 2010.
10. KOTAC International Conference 2010 Operator Theory and its Applications, Incheon University, Incheon, Korea, June 18, 2010.
11. Operator Algebras & Operator Theory Seminar, Seoul National University, Seoul, Korea, May 14, 2010.
12. Special Session on Operator Theory and Operator Algebras, Joint Meeting of the AMS and the Korean Mathematical Society, Ewha Womans University, Seoul, Korea, December 16, 2009.
13. Institute for Mathematical Sciences Seminar, Ewha Womans University, Seoul, Korea, December 4, 2009.
14. Operator Algebras & Operator Theory Seminar, Seoul National University, Seoul, Korea, November 13, 2009 (invited speaker).
15. Analysis Seminar, Ewha Womans University, Seoul, Korea, June 23, 2009.
16. KOTAC International Conference 2009 Operator Theory and its Applications, Kyungpook National University, Daegu, Korea, June 19, 2009.
17. Operator Algebras & Operator Theory Seminar, Seoul National University, Seoul, Korea, June 5, 2009 (invited speaker).
18. International Workshop on Operator Theory and its Applications (IWOTA), College of William and Mary, Williamsburg, VA, July 23, 2008.
19. Graduate Student Seminar, Brown University, Providence, RI, March 19, 2008.
20. Southeastern Analysis Meeting (SEAM), Vanderbilt University, Nashville, TN, March 6, 2008.
21. Graduate Student Seminar, Brown University, Providence, RI, October 31, 2007.
22. Analysis Seminar, Brown University, Providence, RI, September 19, 2007.
23. Texas A & M Workshop in Analysis and Probability, Texas A & M University, College Station, TX, August 3, 2007.
24. NCGOA Research Training Group Seminar, Vanderbilt University, Nashville, TN, April 6, 2007 (invited speaker).