

David T. Kung

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E D U C A T I O N

Ph. D., Mathematics August 2000
University of Wisconsin - Madison
Research Area: Harmonic Analysis
Advisor: Andreas Seeger
Minor: Mathematics Education

M. A., Mathematics May 1996
University of Wisconsin - Madison

B. A., Mathematics and (almost) Physics May 1994
University of Wisconsin - Madison

E X P E R I E N C E

St. Mary's College of Maryland **Dept. of Math and Computer Science**
Chair Fall 2006 - 2007, 2008 - 2010, Spring 2011
Professor 2012 - present
Associate Professor Fall 2006 - 2012
Assistant Professor 2000 - 2006

Visiting and Temporary Positions:

Mathematical Association of America **MAA Project NExT**
Director of MAA Project NExT 2014-2018

Lingnan University, Hong Kong S.A.R. **Core Curriculum Office**
Visiting Scholar 2014

Fudan University, Shanghai China **School of Mathematical Sciences**
Visiting Associate Professor of Mathematics 2007 - 2008

University of Wisconsin **Department of Mathematics**
Teaching Assistant & Lecturer 1996-1999

G R A N T S

College Mathematics Instructor Development Source (CoMInDS) 2015-2018
Consultant on this \$901k NSF grant to consolidate and disseminate professional development materials for graduate students in mathematics.

SMCM STEM-Navigators (\$598,000) 2013-2017
PI (then co-PI after summer 2014) for this NSF (S-STEM) proposal to fund \$520,000 in scholarship money for financially needy STEM students, largely from underrepresented groups.

Emerging Scholars Program - Research Experience for Undergraduates (ESP-REU) 2010-2013 (\$265,576)
PI for this NSF funded summer research experience, primarily for underrepresented students early in their college careers. The program brings twelve students to SMCM for six weeks studying mathematics and engaging in research projects with SMCM faculty.

National Research Experience for Undergraduates Program (\$31,000) 2010
Served as PI for this grant to give five underrepresented SMCM students a six-week research experience. Also taught the morning seminar on axiomatic foundations of mathematics. This program served as a precursor to the REU.

Building a Successful Emerging Scholars Program, (\$25,000 per year) 2006-2009
With three others, secured funding to run a three-day MAA PREP workshop to help institutions understand, adapt, and plan Emerging Scholars Programs at their institutions. Funded for summer 2007, 2008, and 2009 — the 2009 workshop was cancelled.

Video Case Studies for Professional Development of Teaching Assistants (\$496,000) 2006-2011
Part of a group, led by Dr. Shandy Hauk, secured this FIPSE grant from the Department of Education to develop, produce and study video vignettes for use in professional development of graduate Teaching Assistants. Published online at www.collegemathvideocases.org

Research on Calculus Teaching Assistants (\$5,000) 2003
Applied for and was awarded a \$5,000 grant to study teaching assistants' knowledge of student thinking by the Calculus Consortium for Higher Education.

P U B L I C A T I O N S

What Could They Possibly Be Thinking? Understanding Your College Math Students, in process for the Mathematical Association of America "MAA Notes" series, with Natasha Speer.

"Math for Social Justice: A last math class for responsible citizens", book chapter, to appear in *Mathematics and Social Justice: Modules for the Classroom*, MAA Notes series.

"A Delicate Balance: Quantitative Literacy & Equity," Dec. 2016 / Jan. 2017, MAA FOCUS, with Kira Hamman.

"Mind-Bending Math: Riddles & Paradoxes," July 2015, a 24-lecture course, The Teaching Company's Great Courses.

"Video Cases for College Mathematics Instructors", at www.collegemathvideocases.org, with Shandy Hauk, Natasha Speer, and JJ Tsay.

"Do They *Really* Get It? Evaluating Evidence of Student Understanding of Power Series", 2013 PRIMUS, Vol. 23 No. 5, with Natasha Speer.

“How Music and Mathematics Relate,” Feb. 2013, a 12-lecture course, The Teaching Company’s Great Courses.

“Making Your Mathematics Program Vibrant,” Dec. 2010 / Jan. 2011, Mathematics Association of America’s FOCUS, with Sandy Ganzell.

“Teaching Assistants Learning How Students Think”, 2010, *Research on Collegiate Mathematics Education VII*, Conference Board of Mathematical Sciences, Issues in Mathematics Education, Vol. 16.

“A Growing Affinity,” review of *The Calculus of Friendship* by Steven Strogatz, in *American Scientist*, Jan-Feb 2010.

“Mathematics teaching assistants learning to teach: Recasting early teaching experiences as rich learning opportunities”, Fall 2009, Journal of Graduate and Professional Student Development, Volume 12, with Natasha Speer.

“What I Learned from. . . Shutting Up and Listening,” January 2008, Mathematical Association of America’s FOCUS.

“Local Smoothing Phenomena for Operators Failing the Cinematic Curvature Condition,” Vol. 324, 2006; Journal of Mathematical Analysis and Applications, pp. 460-471.

“The Young Mathematicians’ Network,” *Math Horizons*, Nov. 2005; with John Vano.

“Cooperative Learning in Calculus Reform: What Have We Learned?,” *Research on Collegiate Mathematics Education*, Vol. 5, 2003; Conference Board of Mathematical Sciences; with Abbe Herzig.

“Making Group Work Effective in the Mathematics Classroom,” in Searching for Solutions: A Guide for Empowering Beginning Teachers of Mathematics. 2004, National Council of Teachers of Mathematics; with Abbe Herzig.

“Local Smoothing Phenomena for Operators Failing the Cinematic Curvature Condition,” Doctoral Dissertation, 2000, UW-Madison.

“A Comparison of Diffuse Ionized and Neutral Hydrogen Away From the Galactic Plane: H_α -Emitting H_1 Clouds,” *Astrophysical Journal*, August 1995; with R. Reynolds, S. Tufte, C. Heiles, and P. McCullough.

H O N O R S A N D A W A R D S

Turfe Distinguished Lecture Series Speaker 2016
University of Michigan - Dearborn speaker series

Gordon Lecturer 2015
Denison University - Mathematics Speaker Series

Discovery Science Lecturer 2014
University of Nevada - Reno speaker series

Faculty Service Award 2012 and 2013
Given by the SMCM Student Government Association to one faculty member each year.

Distinguished Lecturer 2013
Invited to give one of six lectures at the MAA Headquarters.

T.C. Wollan Memorial Distinguished Lecturer 2012
Invited to give a series of talks at Concordia College.

Lyceum Series Speaker	2011
One of three speakers chosen during the year to give a series of interdisciplinary talks at Winona State University.	
MAA Undergraduate Lecture in Mathematics	2010
One of six hour-long, invited MAA addresses at the Joint Mathematics Meetings in San Francisco.	
Best Paper Award: Conference on Research in Undergraduate Mathematics Education	2007
Shared with co-author Natasha Speer	
Nominated for the CASE Professor of the Year Award	2006, 2007
Nominated by St. Mary's College for this nationwide honor.	
John M Smith Teaching Award, MAA Section's Distinguished Teaching Award	2006
Sole recipient of this \$200 award given annually by the Maryland/DC/Virginia Section of the Mathematics Association of America.	
Nominated for MAA's Henry L. Adler Award for Distinguished Teaching	2005, 2006
Nominated by the department for this prestigious national award for mathematics faculty early in their careers.	
Homer L. Dodge Award for Excellence in Teaching by Junior Faculty	2004
Sole recipient of this \$1000 award at St. Mary's College of Maryland.	
Graduate School Excellence in Teaching Award	1999
One of eight given this \$1000 award from a pool of 2000 candidates.	
Sustained Excellence in Teaching and Service Award	1999
Honor given by the Math Department to one graduate student each year.	
College of Letters and Science Teaching Fellow	1998
One of eighteen chosen from a pool of over 1000 candidates.	
GAANN Research Fellowship	1997, 1998
United States Department of Education.	
Excellence in Teaching Award	1997
University of Wisconsin Department of Mathematics.	
Barry Goldwater Mathematics and Science Scholarship	1992-94

R E S E A R C H P R E S E N T A T I O N S

The Challenge of Diversifying Higher Education, invited colloquium, Frostburg State University, March 24, 2016.

Empowering Whom? The Challenge of Diversifying the Mathematics Community, closing plenary talk, Inquiry-Based Learning — Legacy of R.L. Moore Conference, June 27, 2015.

Research on Learning to Teach and How It Relates to Graduate Student Professional Development, invited talk (with Natasha Speer), Preparing Graduate Students to Teach Undergraduate Mathematics Conference, Harvard University, June 12, 2013.

Undergraduate TAs as the Holy Grail: Work Savings, Educational Benefits, & Program Development, contributed talk, MathFest, Madison, WI, August 2, 2012.

Math and Social Justice: Improving the world with semester projects in a liberal arts math course, contributed talk, Joint Mathematics Meetings, New Orleans, LA, January 7, 2011.

Closer to Fair: Teaching Mathematics for Social Justice, invited lecture, Integrating Science and Mathematics Education Research into Teaching Conference, University of Maine at Orono, June 21, 2010.

Closer to Fair: Social Justice in Mathematics — Mathematics for Social Justice, HHMI Scholars Day Invited Lecture, Lewis and Clark, Portland, OR, March 13, 2009.

Preparation for a Career not just the First Day of Class: Recasting TAs Early Teaching Experiences as Learning Opportunities, invited talk, Joint Mathematics Meetings, San Diego, CA, January 9, 2008.

The Day I Learned to Shut Up and Let My Students Talk, contributed talk, Sectional Conference of the MAA, MD-VA-DC Section, April 14, 2008.

Teaching Assistants Learning to Teach: Recasting Early Teaching Experiences as Rich Learning Opportunities, contributed talk, RUME Conference, San Diego, CA, February 23, 2007.

Teaching As Learning: Mathematics Graduate Students' Development of Knowledge of Student Thinking About Limits, poster presentation, PME-NA, Merida, Mexico, November 11, 2006.

A Tale of Two Backgrounds: Snapshots of Graduate Students Knowledge of Student Thinking in Calculus, contributed talk, RUME Conference, New Brunswick, NJ, February 25, 2006.

Teaching Assistants Learning How Students Think About Calculus, Math Research Seminar, St. Mary's College of Maryland, March 2, 2005.

Teaching Assistants Learning How Students Think About Calculus, contributed talk, RUME Conference, Phoenix, AZ, February 25, 2005.

Learning What You Need To Teach - Just In Time, MathFest, Providence, RI, August 12, 2004.

Pedagogical Content Knowledge of Former Emerging Scholars Teachers, preliminary report, RUME Conference, Scottsdale, AZ, October 24, 2003.

Singular and Hyper-Singular Integral Operators, Math Research Seminar, St. Mary's College of Maryland, December 6, 2002.

Local Smoothing Phenomema for a Family of Averaging Operators, Regional AMS Conference, Williamstown, Massachusetts, October 14, 2001.

Cooperative Learning in Calculus: What Have We Learned? Contributed Paper, Mathfest, Madison, Wisconsin, August 4, 2001.

Collaborative Learning in Calculus: A Case Study, Math Research Seminar, St. Mary's College of Maryland, February 8, 2001.

Local Smoothing Phenomena for Operators Failing the Cinematic Curvature Condition, Math Research Seminar, St. Mary's College of Maryland, September 14, 2000.

Local Smoothing Phenomena for Operators Failing the Cinematic Curvature Condition, Dissertation Defense, UW-Madison, July 20, 2000.

Using Cooperative Learning in the Mathematics Classroom Workshop, Wisconsin Mathematics Council, Green Lake, Wisconsin, May 5, 2000.

Dealing With Negative Attitudes Toward Math in Courses for Pre-Service Teachers, Seminar, Salisbury State University, February 22, 2000

Collaborative Learning in Calculus: A Case Study, Colloquium, Weber State University, February 4, 2000.

Local Smoothing Results for a Family of Averaging Operators, Joint Meetings, Washington D.C, January 19, 2000.

Kekeya Sets or How Much Room Does it Take to Turn a Pin Around, and Problems in Harmonic Analysis Related to Kekeya Sets, Graduate Student Analysis Seminar, UW-Madison, October 11 and 18, 1999.

The Next Generation of Research on Calculus Reform, MathFest, Providence, RI, August 1, 1999; with Abbe Herzig.

Collaborative Learning in Calculus: A Case Study, Wisconsin Mathematics Council, Green Lake, WI, April 30, 1999; with Abbe Herzig.

Collaborative Learning in Calculus: A Case Study, UW-Madison, November 18, 1998; with Abbe Herzig.

The Kekeya Maximal Function: Wolff's Latest Improvements, Analysis Seminar, UW-Madison, August 25, 1997.

I N V I T E D T A L K S

Rising to the Challenge of Diversifying STEM Disciplines,

Allegheny College faculty workshop, Meadville, PA, September 26, 2016
MAA Project NExT plenary session, Columbus, OH, August 2, 2016

Mind-Bending Paradoxes & the Possibility of Changing Your Mind,

Invited Colloquium, U. Michigan - Dearborn, April 14, 2016
Invited Colloquium, Denison University, October 13, 2015
Natural Sciences & Math Colloquium, St. Mary's Coll. of MD, February 17, 2015

Creating a Vibrant and Inclusive Community,

SMCM Teaching Excellence Workshop (with Clint Neill), August 15, 2016
MAA Project NExT breakout session, August 3, 2016

Teaching Math / Teaching Students,

Symposium on Developmental Mathematics, New Orleans, LA, October 14, 2016.
Conference on Precalculus to Calculus: Insights and Innovations, St. Thomas University,
June 18, 2016

Making Group Work Work,

New Jersey Section NExT workshop, Monmouth University, April 11, 2015

Math & Music: Connecting Theory and Practice,

North Carolina MAA State Dinner, Elon University, October 26, 2015
Howard University, DC, October 16, 2015
MathAcrossCampus, University of Washington, Oct. 10, 2014
City University of Hong Kong, April 29, 2014

Symphonic Equations: A Mathematical Exploration of Music,

(alternate title *Harmonious Equations: A Mathematical Exploration of Music,*)

Math Colloquium, Gettysburg College, Gettysburg, PA, September 27, 2016
Mathematics Department Lecture, Allegheny College, September 26, 2016
Turfe Distinguished Lecture, University of Michigan - Dearborn, April 14, 2016
Math Colloquium, Frostburg State University, March 24, 2016
Math Colloquium, Elon University, October 26, 2015
Nova Scotia Math Teachers, Halifax, October 23, 2015
Gordon Lecture Series, Denison University, October 12, 2015
New Jersey Sectional MAA Conference, Monmouth University, April 11, 2015
Allegheny Sectional MAA Conference, Washington and Jefferson College, April 10, 2015
Sonoma State M*A*T*H Colloquium, April 8, 2015
Regional Undergraduate Math Research Conference, Towson University, March 7, 2015
Seattle University, October 9, 2014
Lingnan University, Hong Kong, April 23, 2014
City University of Hong Kong, School of Creative Media, March 25, 2014
MAA Pacific Northwest Sectional, Willamette University, April 13, 2013.
MAA Distinguished Lecture Series, with Y. Caruthers and A. Goldman
of the National Symphony Orchestra, Washington DC, February 26, 2013.
NSM Colloquium, SMCM, December 3, 2012.

Closer to Fair: Social Justice in Mathematics - Mathematics for Social Justice - Workshop,

MAA Project NExT break-out session, Washington, D.C., August 3, 2015.
Allegheny Section NExT Worksho, Washington and Jefferson College, April 10, 2015
MAA Project NExT break-out session, Hartford, CT, July 31, 2013.
College Bound Retreat, St. Mary's, MD, June 10, 2013.
Bryn Mawr Math Awareness Month, Bryn Mawr, PA, April 1, 2013.
MAA Project NExT break-out session, Madison, WI, July 31, 2012.

MAA Sectional — MD/VA/DC, Stevenson University, April 13, 2012.
Anja S. Greer Conference on Secondary School Mathematics, Science
and Technology, Phillips Exeter Academy, June 27, 2011.
MAA Project NExT break-out session, Pittsburgh, PA, August 4, 2010.
Integrating Science and Mathematics Education Research into Teaching
University of Maine at Orono, June 21, 2010.

How Math Made Modern Music And Irrational,

Math Colloquium, Swarthmore, April 2, 2013.
Invited Colloquium, University of Wisconsin - Oshkosh, April 23, 2012.
Invited Plenary, MD/VA/DC Section of the MAA, April 14, 2012.
Invited Address, Math+ Series, Coastal Carolina University, January 26, 2012.
Lyceum Presentation, Winona State University, October 13, 2011.
Mathematics and Society Lecture Series, Macalester College, October 11, 2011.
Math Colloquium, Carleton College, October 10, 2011.
Keynote Address, Anja S. Greer Conference
Phillips Exeter Academy, June 27, 2011.
Keynote Address, Center for Undergraduate Research in Mathematics,
March 18, 2011.
Keynote Address, St. Lawrence River Valley Undergraduate Research
Conference, November 5, 2010.
Mathematics Colloquium, Villanova University, September 24, 2010.
Invited Mathematics Lecture, Slippery Rock University, September 23, 2010.
EPaDel Section Meeting of the MAA, Elizabethtown College, April 24, 2010.
NSM Colloquium, St. Mary's College of Maryland, March 31, 2010.
Princeton University Undergraduate Mathematics Colloquium, March 30, 2010.
MAA Undergraduate Lecture, Joint Mathematics Meetings, January, 2010.
Math Colloquium, Lewis and Clark College, March 12, 2009.
Evening with the Professors Series, Asbury Solomons, January 12, 2009.
Plenary, Texas Undergraduate Mathematics Conference, September 27, 2008.
Math Colloquium, Franklin and Marshall College, October 21, 2004.
Math Colloquium, University of Wisconsin - Stevens Point, April 10, 2003.
Invited Colloquium, Hood College, April 6, 2003
Math Colloquium, Gettysburg College, November 15, 2001.
Math Colloquium, Middlebury College, October 16, 2001
Mathematics Colloquium, Universidad Nacional Automata de Mexico (UNAM),
Mexico City, June 6, 2001.
Analysis Colloquium, UNAM, Cuernavaca, Mexico June 19, 2001.
NSM Division Colloquium, St. Mary's College of Maryland, February 21, 2001.

Why Pianos are Never In Tune,

Assembly Lecture, Phillips Exeter Academy, April 6, 2012
Invited Address, Berkeley-Carroll School, April 5, 2012

Why Size Matters: The Mathematics of Scaling,

NSM Colloquium, St. Mary's College of Maryland, November 29, 2006.

To Infinity and Beyond: the Life and Work of Georg Cantor,

Faculty Seminar, St. Mary's College of Maryland, February 15, 2002.

A Simple Problem With an Unexpected Answer: Bertrand's Paradox,

Math Colloquium, Gettysburg College, November 2, 2000.
Invited Talk, Central Washington University, February 28, 2000.
Invited Talk, St. Mary's College of Maryland, February 24, 2000.
Invited Talk, Carroll College, February 9, 2000.
Undergraduate Math Club, UW-Madison, April 23, 1998.

P R O F E S S I O N A L A C T I V I T I E S

Member, Transforming Post-Secondary Education in Mathematics (TPSE-Math) Mathematics Advisory Group (MAG)

Director, MAA Project NExT, the premier professional development program for new math faculty. 2014-2018.

Founder and Director, Southern Maryland Math Circle, a math enrichment program for local middle- and high-school students, 2014-present.

Chair, MAA's Carriage House Committee, 2014 - 2016, **Member**, 2012 - present.

Editorial Board Member, MAA's Math Horizons, 2013 - present.

Invited Workshop Organizer, "Closer to Fair: Mathematics for Social Justice," Anja S. Greer Conference on Secondary School Mathematics, Science and Technology, Phillips Exeter Academy, June 27, 2011.

Reviewer, *PRIMUS*, various.

Reviewer, NSF-STAGE program, Fall 2010.

Reviewer, AERA, *Educational Researcher*, various.

Co-organizer, Contributed Paper Session, "Mathematics, Equity, Diversity, and Social Justice," Joint Mathematics Meetings, 2010

Panel Member, MAA Project NExT Panel, "Attracting Mathematics Majors," MathFest, 2009.

Member, MAA Committee on Early Career Mathematicians, 2007-2013.

Member, Working Group on Teaching Assistants, Psychology of Mathematics Education - North American Chapter, 2005 - 2007.

Managing Editor, Young Mathematicians' Network, 2004 - 2010.

Organizer, Young Mathematicians' Network Town Meeting, Joint Meetings, 2002 - 2008.

Invited Panelist, MAA-Young Mathematicians' Network panel discussions "Negotiating With the Dean," and "Preparing Your Resume," MathFest, Providence, 2004.

Co-organizer, MAA-Young Mathematicians' Network panel discussion "Finding Your Next Job," 2004 Joint Meetings.

Co-organizer, MAA Sectional Conference, St. Mary's College of Maryland, April 12-13, 2002.

Invited Participant, Preparing Mathematicians to Educate Future Teachers Workshop, San Diego, January 9-14, 2002.

Co-organizer, MAA-Young Mathematicians' Network panel discussion "Closing the Deal: The campus interview and beyond," 2002 Joint Meetings.

Invited Participant, Building Bridges in Teacher Education: 2001 Conference for Maryland's Mathematics Teacher Educators, August 13-14, 2001.

Board Member, Young Mathematicians' Network, 2000 - present.

Volunteer Proof-reader, MathCOUNTS National Mathematics Competition for middle school students, 2000 - 2010.

C O L L E G E & D E P A R T M E N T S E R V I C E

St. Mary's College of Maryland

Faculty Senate Vice-President 2016-present

Admissions Advisory Council member 2014-present

Faculty Finance Delegate Fall 2011-2013

Served as faculty liaison to the Finance, Investment and Audit Committee of the Board of Trustees, reporting to the Faculty Senate.

Faculty Parliamentarian 2009-2013

Strategic Planning Committee Member 2003-2005, 2011-2013

Faculty Advisor various

Served as advisor to student groups including the St. Mary's Men's and Women's Ultimate Teams, the Cross-Country Club, the Rock Climbing Club, the Volleyball Club, and the Bike Shop.

Joe Carroll Memorial Staff Award Co-founder 2011

Initiated, planned and raised over \$10,000 in honor of Schaefer Hall's long-time housekeeper, to fund an annual SMCM staff award.

Putnam Exam Coach 2000 - 2006, 2011, 2013

Started and served as coach for a Putnam Exam team, growing from five students for the 2000 exam, to 25 in 2006, and to 35 in 2011. Organized a rally to support the 2010 and 2011 teams. Developed, taught, and co-taught a one-credit course in problem solving as preparation for the exam.

Department Chair 2007-08, 2009-2010, Spring 2011

CoMAP Mathematics Contest in Modeling Advisor 2010-2011

Organized and mentored two teams in this annual, applied mathematics competition, both of whom were designated as Honorable Mention.

First-year Faculty Seminar Co-organizer 2005-2006

Organized and facilitated workshops on teaching effectiveness for first-year tenure-track faculty.

Faculty Mentor 2001-2007, 2008-2012

Mentored one new faculty member each academic year.

Faculty Senate Member 2002-2004

Elected to nine-member faculty senate; researched and wrote a Domestic Partner Benefits plan and a Living Wage Proposal.

New Student Orientation 2003-2006, 2008

Organized and ran sessions for prospective math majors, a panel discussion on Freedom and Security, and an evening concert, "A Celebration of the (Liberal) Arts." Participated on a panel discussion on Higher Education and Civic Duty.

Departmental Liaison 2002-2007

Served as the departmental liaison to the Mathematics Association of America.

Hiring Committees 2001-present

Served on ten tenure-track search committees, reading over 1000 applications and hosting over 30 on-campus interviewees.

University of Wisconsin — Madison

Sidewalk Math Co-Coordinator 1997-2000

Organized an annual two day outdoor tutoring session during Spring finals, bringing together more than thirty volunteer Teaching Assistants and over 250 undergraduates.

Committee Member 1996-2000

Served for two years on the Committee on Teaching Assistant Policies and Procedures, helping to establish a TA mentoring program. Also served on the Graduate Program Committee.

Teaching Assistant Coordinator

Fall 1996, 1997

Directed training for all new Teaching Assistants in the Math Department, including practice teaching sessions and workshops on collaborative learning and gender in the classroom.