

CURRICULUM VITAE

Name: Karen M. Brucks
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Research Interests: Dynamical Systems. Topological, symbolic, and measurable dynamics.

Degrees

Ph.D. May 1988 North Texas State University, Mathematics
M.A. May 1982 North Texas State University, Mathematics
B.A. May 1980 University of Arizona, Mathematics

Positions

08-96 to present: Associate Professor, UWM, Mathematical Sciences Dept
08-01 to 08-05 Chairperson, UWM, Mathematical Sciences Dept
01-91 to 08-96: Assistant Professor, UWM, Mathematical Sciences Dept
09-90 to 01-91: Visiting Assistant Professor, Mathematics Dept, SUNY Stony Brook
09-89 to 09-90: Assistant Research Professor, Institute for Mathematical Sciences (IMS), SUNY Stony Brook
09-88 to 09-89: Visiting Instructor, Michigan State University, Mathematics Dept

Selected Administrative and Committee Activities

- Chairperson, August 2001 - August 2005 UWM Department of Mathematical Sciences.
- UWM HR Director Search and Screen Committee, Summer and Fall 2006
- UWM Chancellor's Strategic Research Development Review Panel Member, Spring 2005.
- UWM Awards and Recognition Committee, 2003 to 2006.
- UWM Chancellor Search and Screen Committee, 2003-2004.
- UWM Graduate School Research Award Committee, 2002-2004.
- UWM College of Letters and Science Dean Search and Screen Committee, 2001-2002.

Selected Professional Activities

- Association for Women in Mathematics Travel Grant Selection Committee, 2004-2005.
- Spring 2003 team taught (as an overload) a cross listed (Math Sci, Bio Sci, and Geo Sci) sophomore seminar course: 'The Process and Nature of Integrated Scientific Research'.
- Summers 2007, 2001, 1999, and 1997 instructor for the four week Summer Math Program, Carleton College, Northfield MN; taught a course in Dynamical Systems. This program is an NSF funded program for undergraduate women majoring in mathematics. The program supports (typically) 18 students from universities and colleges in the USA.
- American Association of University Women's American Fellowship Panel, 1997-2000.

Grants & Awards Received

- NSF Computer Science, Engineering, and Mathematical Sciences Scholarship Grant: Transition to Meaningful Employment Program. Effective September 1, 2002 to August 31, 2006; \$399,509; Co-PI. Grant provides tuition scholarships to entering freshman intending to major in computer science, engineering, or mathematical sciences.
- UWM Lab Modernization Awards (joint), 2002 and 2004 to upgrade department computer labs.
- Fulbright Research Scholar Grant. Effective September 1, 1997 to February 1, 1998; \$12,995; Eötvös Lóránd University, Budapest Hungary.
- UWM - Graduate School Research Committee Award. Effective: July 1, 1995 to September 1, 1995; one month summer salary and travel support.
- UWM - Research Incentive Grant. Effective: Fall 1992. One course reduction in teaching to pursue external research funding opportunities.
- NSF - AWM travel grants. Three grants have been received; February 1995, May 1992, and June 1989.
- NSF Grant # DMS8920768. Postdoctoral research associate; effective March 1, 1990 to February 29, 1992; summer salary and travel.

Reviewing

Referee for a variety of journals, including the following: *Proceedings of AMS*, *Chaos*, *Nonlinearity*, *Real Analysis Exchange*, *Journal of Mathematical Analysis and Applications*, *Topology and its Applications*, *Ergodic Theory and Dynamical Systems*, and *Fundamenta Mathematicae*.

Review for *SIAM Book Reviews* (1995)

Reviewer for *Mathematical Reviews*.

Memberships in Professional Societies

American Mathematical Society

Association for Women in Mathematics (AWM)

American Association of University Women

Invited Talks

- Summer 2005, 2004, 2003, 2000: One hour Colloquium. Summer Mathematics Program, Carleton College, Northfield MN.
- May 2003 (joint): Twenty minute presentation. U WI System Women in Science Program, Spring Retreat, session on curriculum reform at the undergraduate level, U WI Oshkosh.
- November 2001: Fifty minute talk. Workshop on Low Dimensional Dynamics, University of Florida.
- December 1999: Twenty minute talk. AMS special session on Dynamical Systems, Denton TX.
- July 1999: Invited Panelist for Olga Taussky Todd Celebration, MSRI, Berkeley CA.
- May 1999: One hour seminar. University of North Texas, Denton TX.
- October 1998: Twenty minute talk. AMS Special Session on Topology in Dynamics, Winston-Salem NC.
- March 1998: One hour Colloquium. Univerzita mateja Bela, Banská Bystrica, Slovakia
- January 1998: Twenty minute talk. AMS Special Session on Topology and Dynamical Systems, Baltimore MD.
- November 1997: One hour Colloquium. Miskolc University, Miskolc Hungary.

- June 1997: One hour talk. Real Analysis Symposium, Chatanooga TN.
- April 1997: Twenty minute talk. Dynamics Conference, Denton TX.
- October 1996: Twenty minute talk. AMS Special session on Dynamical Systems and Continua Theory, Chatanooga TN.
- July 1996: One hour Colloquium. Mathematisches Institut, Universität Erlangen-Nürnberg, Erlangen Germany.
- July 1996: Six one hour lectures given at a ‘1-D Dynamics Summer School’, Győr Hungary.
- July 1995: One hour seminar. Mathematics Department, Montana State University, Bozeman Montana.
- June 1995 Fifty minute talk. Dynamical Systems Symposium, Stefan Banach International Mathematical Center, Warsaw Poland.
- April 1995: One hour Colloquium. Mathematics Department, U-Louisville, Kentucky.
- February 1995: One hour Colloquium. Mathematics Department, Marquette University, Milwaukee WI.
- November 1994: One hour seminar. Mathematics Department SUNY Buffalo NY.
- June 1994: Twenty minute talk. Thirty Years after Sharkovskii Symposium, Spain.
- January 1994: One hour Colloquium. Mathematics Department, College of Charleston, Charleston South Carolina.
- November 1993: One hour Colloquium. Mathematics Department, University of North Texas, Denton TX.
- November 1993: One hour seminar. Mathematics Department, University of Texas, Austin TX.
- June 1993: Twenty minute (contributed) talk. Real Analysis Symposium, Macalester College, St. Paul MN.
- January 1993: Twenty minute talk. Special session on Continuum Theory and Dynamical Systems, AMS/MAA Annual Meeting, San Antonio TX.
- December 1992: One hour Colloquium. Mathematics Department, University of WI-Oshkosh, Oshkosh WI.

- January 1992: Twenty minute talk. Special Session on Real Analysis, AMS/MAA Annual Meeting, Baltimore MD.
- December 1991: One hour Colloquium. Mathematics Department, U-North Carolina at Chapel Hill, Chapel Hill NC.
- July 1991: Twenty minute talk. Dynamical Systems Symposium, Ukrainian Academy of Sciences, Kiev Ukraine.
- May 1991: One hour talk. IBM T.J. Watson Research Center, Yorktown Hgts New York.
- April 1994: Fifteen minute (contributed) talk. Spring Topology Conference, Sacramento CA.
- March 1991: One hour seminar. Navy Dynamics Seminar Series, Naval Surface Warfare Center, Silver Spring MD.
- March 1990: One hour seminar. Navy Dynamics Seminar Series, Naval Surface Warfare Center, Silver Spring MD.
- March 1989: Twenty minute talk. Joint Spring Topology Conference and Southeast Dynamics Conference, Auburn AL.
- Fall 1989: One hour seminar. Mathematics Department, City University of New York, New York NY.
- March 1988: Fifteen minute (contributed) talk. Spring Topology Conference, U-Alabama at Birmingham.

Conferences & Workshops attended

- AMS, MAA, SIAM, Dialog 2004: NSF DMS and the Mathematical Sciences Community, Washington D.C., May 2004.
- AMS, ASA, MAA, and SIAM Conference on funding opportunities-NSF/DMS, Arlington VA, May 2003.
- U WI Women in Science Program, Curriculum Reform Institute, U WI Oshkosh, June 2002.
- Sixteenth Annual Department Chairs Colloquium, sponsored by the Board on Mathematical Sciences, The National Academies, Washington D.C., November 2001.
- Workshop on Low Dimensional Dynamics, U FL, November 2001.
- AMS Special Session, Denton TX, December 1999.

- AMS Special Session, Winston-Salem NC, October 1998.
- AMS Special Session, Baltimore MD, January 1998.
- AMS Special Session, Milwaukee WI, October 1997 (co-organizer).
- Dynamics Conference, Barcelona Spain, August 1997.
- Real Analysis Symposium, Chatanooga TN, June 1997.
- Dynamical Systems Conference, Denton TX, April 1997.
- AMS Special Session, Chatanooga TN, October 1996.
- Midwest Dynamical Systems Conference, Ann Arbor MI, April 1996.
- Spring Topology Conference, Muncie ID, March 1996.
- Dynamical Systems Symposium, Warsaw Poland, June 1995.
- Spring Topology Conference, U-Delaware, April 1995.
- 10th Summer Topology Symposium, Amsterdam The Netherlands, August 1994.
- Thirty Years after Sharkovskii Symposium, Spain, June 1994.
- Spring Topology Conference, Auburn AL, March 1994.
- Coding, System Theory and Symbolic Dynamics Symposium, Boston, October 1993.
- Real Analysis Symposium, St Paul MN, June 1993.
- Spring Topology Conference, Columbia S. Carolina, April 1993.
- 1993 Annual Meeting of AMS/MAA, San Antonio TX, January 1993.
- Workshop on Symbolic Dynamics, MSRI, Berkeley CA, November 1992.
- Strange Attractors and Knots, Boston University, July 1992.
- Symposium ‘Chaotic Dynamical Systems’ The Netherlands, June 1992.
- Spring Topology Conference, Charlotte N. Carolina, April 1992.
- 1992 Annual Meeting of AMS/MAA, Baltimore MD, January 1992.
- Symposium on Symbolic Dynamics, Yale, August 1991.
- Symposium in Dynamical Systems, Kiev Ukraine, July 1991.

- Symposium in honor of J. Milnor, SUNY Stony Brook NY, June 1991.
- Spring Topology Conference, Sacramento CA, April 1994.
- Joint Spring Topology and Southeast Dynamics Conference, Auburn AL, March 1989.
- AMS-IMS-SIAM Joint Summer Research Conference on Continuum Theory and Dynamical Systems, Humboldt State University, Arcata CA, June 1989.
- Spring Topology Conference, U-Alabama at Birmingham, March 1988.

PUBLICATION LIST

1. K.M. Brucks and H. Bruin, Topics from one-dimensional dynamics, LMS Student Text Series, Cambridge University Press (2004).
2. K.M. Brucks, J. Ringland, and C. Tresser, An embedding of the Farey Web in the parameter space of simple circle maps, *Phys. D* 161 #3-4, 142-162 (2002).
3. K.M. Brucks and Z. Buczolich, Trajectory of the turning point is dense for a σ -porous set of tent maps, *Fund. Math.* 165 #2, 95-123 (2001).
4. K.M. Brucks and Z. Buczolich, Universality in inverse limit spaces of the logistic family occurs with positive measure, *Atti. Sem. Mat. Fis. Univ. Modena.* 48 #2, 335-353 (2000).
5. K.M. Brucks and H. Bruin, Subcontinua of inverse limit spaces of unimodal maps, *Fund. Math.* 160 #3, 219-246 (1999).
6. K.M. Brucks, R. Galeeva, D.N. Rockmore, and C. Tresser, On the \star -Product in kneading theory, *Fund. Math.* 152 #3, 189-209 (1997).
7. M. Barge, K.M. Brucks, and B. Diamond, Self-similarity in inverse limit spaces of the tent family, *Proc. Amer. Math. Soc.* 124, 3563-3570 (1996).
8. K.M. Brucks and M. Misiurewicz, Trajectory of the turning point is dense for almost all tent maps, *Ergod. Th. & Dynam. Sys.* 16 #6, 1173-1183 (1996).
9. K.M. Brucks and C. Tresser, A Farey Tree organization of locking regions for simple circle maps, *Proc. Amer. Math. Soc.* 124 # 2, 637-647 (1996).

10. K.M. Brucks and B. Diamond, A symbolic representation of inverse limit spaces for a class of unimodal maps. In: 'Continua with the Houston Problem Book', editors: H. Cook, W.T. Ingram. K.T. Kuperberg, A. Lelek, and P. Minc, Lec. Notes in Pure and Applied Math. 170. Dekker, New York, pp. 207-226 (1995).
11. K.M. Brucks, M.V. Otero-Espinar, and C. Tresser, Homeomorphic restrictions of smooth endomorphisms of an interval *Ergod. Th. & Dynam. Sys.* 12 #3, 429-439 (1992).
12. K.M. Brucks and B. Diamond, Monotonicity of auto-expansions, *Physica D* 51, 39-42 (1991).
13. K.M. Brucks, B. Diamond, C. Tresser, and M.V. Otero-Espinar, Dense orbits of critical points for the tent map, *Cont. Math.* 117, 57-61 (1991).
14. K.M. Brucks, M. Misiurewicz, and C. Tresser, Monotonicity properties of the family of trapezoidal maps, *Commun. Math. Phys.* 137, 1-12 (1991).
15. K.M. Brucks, Uniqueness of aperiodic kneading sequences, *Proc. Amer. Math. Soc.* 107, 223-229 (1989).
16. K.M. Brucks, Hausdorff dimension and measure of basin boundaries, *Adv. in Math.* 78, 168-190 (1989).
17. K.M. Brucks, MSS sequences, necklaces, and periodic points of $f(z) = z^2 - 2$, *Adv. in App. Math.* 8, 434-445 (1987).