

Ken W. Smith
Professor of Mathematics

Personal information

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Education

Ph.D. (Mathematics) Colorado State University, Fort Collins, Colorado, May 1985
M.S. (Mathematics) University of Illinois, Urbana, Illinois, May 1977
B.S. (Mathematics) Western Illinois University, Macomb, Illinois, May 1975

Professional Experience

August 2007 – present	Professor & Chair, Sam Houston State University
July 1994 – August 2007	Professor, Central Michigan University
August 2005 - June 2006	Visiting Scholar, University of Richmond
Spring 1999	Visiting Professor, Colorado State University
October 1995 - August 1997	Assistant Vice-Provost for Institutional Research & Planning
August 1989 - July 1994	Associate Professor, Central Michigan University
May 1992 - July 1992	Technical Director, National Security Agency, Director's Summer Program
June 1990 - June 1991	Senior Cryptologic Mathematician, National Security Agency
April 1985 - August 1989	Assistant Professor, Central Michigan University
August 1984 - April 1985	Instructor, Central Michigan University
August 1980 - May 1984	Graduate Teaching Assistant, Colorado State University
August 1979 - May 1980	Graduate Teaching Assistant, University of Illinois
August 1978 - May 1979	Instructor, Millikin University, Decatur, Illinois
August 1975 - May 1978	Graduate Teaching Assistant, University of Illinois

Administrative Experience

Chair, Department of Mathematics and Statistics, 2007 - present

Math Area Coordinator, CMU Mathematics Department, 2000 - 2004

Organized and chaired meetings of the Mathematics Area within the Math Department.

Interim Director, CMU Office of Institutional Research, 1995 - 1997

Managed collection of institutional data for Central Michigan University.

Organized state and federal reports of educational statistics for Central Michigan University.

Established data exchange with dozens of Michigan colleges and universities.

Promoted accurate assessment of university programs.

Directed an office of three research associates and two student researchers.

Programmed in *SPSS*; prepared reports using *Excel* and *WordPerfect*.

Administrative Experience (continued)

Interim Assistant Vice-Provost, CMU, 1995 - 1997

- Served as a member of the Provost's staff.
- Served as a member of the Michigan Analytical Studies Committee.
- Provided information on university enrollment and FTE.
- Provided information on retention rates, graduation rates, academic trends and profiles.
- Provided data and analysis for restructuring of the College of Arts and Sciences.
- Provided data and analysis for restructuring of the university budget process.
- Served on a variety of adhoc committees throughout the university.
- Met with college deans, associate deans and other administrators regarding academic needs.
- Met with the Academic Senate and senate subcommittees.

Graduate Coordinator, CMU Mathematics Department, 1992 - 1995

- Monitored the Mathematics graduate program on a semester-by-semester basis.
- Aided in the development of a new doctoral program in mathematics.
- Initiated a series of math promotional talks at Historically Black Colleges & Universities.
- Developed a minority recruiting program which visited two dozen HBCUs and directly attracted four minority students during in the '94-'95 academic year.
- Organized math promotional talks at Michigan universities.
- Publicized the graduate programs through a variety of media outlets.
- Monitored and personally encouraged the success of individual graduate students.
- Critiqued teaching performance of individual graduate assistants.
- Chaired the Graduate Committee.
- Organized and chaired the meetings of the Graduate Area (math graduate faculty).
- Aided graduate faculty in seeking grants.
- Worked with the Math 105 course coordinator on supervision of graduate teaching assistants.
- Monitored equipment, desks and office space for graduate assistants.
- Answered inquiries, monitored interest of potential students, actively recruited those who would benefit from our programs and who would strengthen our programs.
- Organized micro-teaching workshops and graduate student orientation.
- Developed and administered qualifying exams.

CMU Mathematics Department Executive Committee, 1992 - 1995, 2000 - 2004

- Advised the Department Chair.
- Allocated resources, computer equipment, teaching loads and summer courses.
- Purchased equipment and software for faculty, staff, graduate students, computer labs.
- Aided in assessment and program review.
- Set the agenda for departmental meetings.

Executive Committee of the CMU University Graduate Council, 1993 - 1995

- Set the agenda for Graduate Council meetings.
- Advised the Dean of the College of Graduate Studies.
- Adjudicated student appeals and grievances.
- Coordinated the curricular process as it related to the Graduate Council.

CMU Academic Senate Executive Board, 1987, 1988

- Set the agenda for Academic Senate meetings.
- Advised the Chair of the Academic Senate.
- Coordinated the curricular process as it related to various Academic Senate subcommittees.
- Heard faculty appeals and grievances.

Technical proficiency

Trained in *Fortran*, *PL/I* & *PL/C*, and assembly language programming.

Program in *C*, *Basic*, *Maple*, and *GAP*, for mathematical research.

Ran *SPSS for Windows* and *Excel* for Institutional Research.

Have worked in a variety of computing environments:

Sun workstations at the National Security Agency.

Macintosh computers for research and classroom use.

IBM compatible personal computers in the Office of Institutional Research.

IBM 9672-R32 mainframe for Institutional Research.

Integrate technology in every area of teaching:

Graphing calculators in Precalculus, Calculus I, and Calculus II.

Stand-alone statistical programs written in *True Basic* for Elementary Statistics.

Maple, in Calculus classes, Linear Algebra and student research projects.

GAP in algebra classes and research projects with undergraduate and graduate students.

Recent University Service

- * Directed LURE program at CMU.
- * Directed Summer 2004 NSF REU in Mathematics & Summer 2007 NSF REU.
- * Co-directed NSF REUs in 2002, 2003, 2005, 2006 (with Sivaram Narayan)
- * Served on CMU Accreditation Self-Study (Subcommittee #4, Acquisition, Discovery and Application of Knowledge.)
- * Chaired qualifying exam committees in algebra, 2001, 2002, 2002, 2005.
- * Served on the Search Committee for Vice President for Governmental Relations, 2002.

Teaching Experience & Curricular Development

In addition to the standard entry-level undergraduate mathematics course (including honors classes in calculus and linear algebra) I have taught the following upper level and graduate classes at Central Michigan University:

MTH 332 Introduction to Analysis	MTH 334 Differential Equations
MTH 341 College Geometry	MTH 375 Discrete Structures
STA 382 Elem. Statistical Analysis	MTH 521 The Theory of Numbers
MTH 522 Math of Cryptology	MTH 523 Modern Algebra
MTH 525 Modern Algebra II	MTH 532 Advanced Calculus
MTH 533 Advanced Calculus II	MTH 570 Mathematical Logic
MTH 573 History of Mathematics	MTH 578 Applied Combinatorics
MTH 596 Coding Theory	MTH 623 The Theory of Groups
MTH 625 Theory of Associative Rings	MTH 641 Topics in Geometry
MTH 673 History of Advanced Math	MTH 678 Combinatorics, II
MTH 696 Seminar in Coding Theory	MTH 725 Topics in Algebra
MTH 778 Topics in Combinatorics	

I have directed three doctoral dissertations in combinatorial mathematics (Paul Becker 2000, Omar AbuGhneim 2005, Solomon Osifodunrin 2008.) I am now directing a fourth doctoral dissertation (Jordan Webster, tentatively 2009.) I recently directed a masters thesis (Mike Fulkerson, 2002) I supervised numerous Plan B papers on character theory, number theory, cryptanalysis, graph theory and functional analysis and a senior thesis on matrix theory.

Currently directing dissertation of Solomon Osifodunrin.

I taught geometry and precalculus in CAMP (for gifted and talented high school students.)

I taught an introductory statistics class (MTH 382) on the world-wide web.

I created (with Arnold Hammel) MTH 522, The Mathematics of Cryptology, Fall 2003.

I created (with Doug Lapp) MTH 261, Problem-based Algebra and Calculus for Secondary Teachers.

I have directed a variety of undergraduate students on projects in matrix analysis, graph theory and algebraic combinatorics. In the past five years I have directed undergraduate research projects with Josh Baron, Nick Bauer, Christine Berkesch, Bernadette Boyle, Raena Bryant, Paul Carmany, Lisa Driskell, Bridget Franklin, Dustin Gage, Jeff Ginn, Oliver Gjoneski, Erin Haller, Jon Lamb, Alan Lamielle, Elizabeth Laub, Monica Leneway, Briana McGarry, Erin Militzer, Kristin Novacek, Nate Obrecht, Kate Soller, Sam Stevens, and Melissa Stiles. Many of these students have presented posters at the Lansing capitol, at student research exhibits (at CMU) and at national meetings of the AMS/MAA.

Christine Berkesch, a student in the 2002 NSF-REU at CMU, won a prize for her poster presentation at a national meeting of the American Math Society. Her work was published in the Rose-Hulman Undergraduate Mathematics Journal. Lisa Driskell worked with me on an undergraduate project in graph theory, got excited about mathematics research and was then accepted into the Grand Valley State University NSF-REU. Her work in that program won her the Greg Mellen prize for best undergraduate paper in Cryptology, published in the journal *Cryptologia*. Lisa is now pursuing a Ph.D. in math at Purdue. Jeff Ginn worked on a project in difference sets under my guidance; he then won a prestigious appointment to Penn State University's Mathematics Advanced Study Semesters (MASS) Program.

Recently I directed graduate level research projects with Mike Fulkerson, Omar AbuGhneim, Solomon Osifodunrin and Jordan Webster. Mike Fulkerson wrote a masters thesis in group theory and is now in doctoral studies at Texas A & M. Omar AbuGhneim completed his Ph.D in math in 2005 and has now five published five papers in mathematics. Solomon Osifodunrin will complete his Ph.D in math in spring 2008; Jordan Webster should finish in spring 2009.

I was a technical director for an NSA Summer Program in 1993, working with approximately 15 undergraduate students on classified research problems in Algebra and Combinatorics. In 1994, I directed Lynn (Piell) Rogala's CMU undergraduate research project on difference sets. My suggested research problem on $(160, 54, 18)$ difference sets was pursued by Matt Ong, who subsequently won the 1999 Mathematics Prize at the Westinghouse Science Fair. My undergraduate explorations in Number Theory and Abstract Algebra have been supported by CMU grants. In the summer of 2000, I was invited to give a workshop in difference sets at the REU site at Mount Holyoke College, Massachusetts.

Professional Growth Activities

Sabbatical, University of Richmond, Fall 2005-Spring 2006.

Received President's Research Investment Fund (CMU grant) with Don Marks, Arnold Hammel, on Cryptography Toolkit, 2002 and coordinated, with Arnold Hammel (MTH) and Don Marks (CPS) the CryptoTools student research group, 2002.

Co-coordinator and speaker in Tournament Matrix Seminar, 2001-2002.

Participant in McGraw-Hill Calculus Symposium, June 2001.

Director of the Graph Theory Seminar, 2000-2001.

Collaborated with CMU visiting professor, Robert Molina, on research in graph theory.

Received University Research Professor award, Spring 2000.

Sabbatical visit to Colorado State University, Spring 1999.

Director of the CMU Combinatorics Seminars.

Organized the Central Michigan problem solving group, *Nasha Komanda*.

Directed an interdisciplinary course in Cryptology and Number Theory with Neelima Shrikhande, chair of the Computer Science Department (1992-93).

Technical director for the National Security Agency; mentored undergraduate research projects with students in the NSA's summer program (Summer 1992).

Led a seminar on difference sets at the National Security Agency (1990-91).

Coordinated a two-semester class on Coding Theory, Information Theory & Cryptanalysis (1989-90).

Regular contributor to the *Mathematical Reviews*. Referee for the *Journal of Combinatorial Mathematics and Combinatorial Computing*, the *Journal of Combinatorial Designs*, the *Journal of Designs, Codes and Cryptography* and other journals in combinatorics.

Creative and Scholarly Activity

External Grants funded

- * Co-PI NSF MCTP grant, approx. \$1,500,000, 2007-2011 (This grant, on “Longterm Undergraduate Research Experiences”, is a collaborative project with CMU, the University of Richmond, Coppin State University and Olin College.)
- * Co-PI NSF-REU grant, approx. \$185,000 (with Sivaram Narayan), 2006-2008.
- * Participant in NSF grant, \$1,065,000 (PI: Doug Lapp & Azita Manouchehri), 2005-2009.
- * Co-PI REU grant for \$165,000 from the NSF (with Sivaram Narayan), 2003-2005.
- * Received SUMMA seed grant of \$5,000 for minority intervention in mathematics, 1996.
- * Received NSA grant of \$17,700, summer 1995, for research on nonabelian difference sets.

Refereed Publications

- * K. W. Smith, “The Representation Theory of Tactical Configurations”, *Congressus Numerantium*, v. 60, 1987, 151 - 162.
- * K. W. Smith, “Flag Algebras of a Symmetric Design”, *Journal of Combinatorial Theory*, Series A, v. 48, no. 2, 1988, 209 - 228.
- * K. W. Smith, “Teaching Number Theory with ZBASIC”, *Proceedings of the Second Annual Conference on Technology in Collegiate Mathematics*, 1989, 294 - 297.
- * K. W. Smith, “In Search of a $(495, 39, 3)$ Difference Set”, *Congressus Numerantium*, v. 73, 1990, 77 - 88.
- * B. Manvel, A. Meyerowitz, A. J. Schwenk, K. W. Smith, P. K. Stockmeyer, “Reconstruction of Sequences”, *Discrete Mathematics*, v. 94, 1991, 209 - 219.
- * R. A. Liebler, K. W. Smith, “On difference sets in certain 2-groups”, in *Coding Theory, Design Theory, Group Theory: Proceedings of the Marshall Hall Conference*, ed. by D. Jungnickel, John Wiley & Sons, 1993.
- * J. A. Davis, K. W. Smith, “A construction of difference sets in high exponent 2-groups”, *Journal of Algebraic Combinatorics*, 1994.
- * K. W. Smith, “Nonabelian hadamard difference sets”, *Journal of Combinatorial Theory*, Series A, v. 70, 1995, 144 - 156.
- * J. Iiams, R. Liebler, K. W. Smith, “Difference Sets in Nilpotent Groups with Large Frattini Quotient: Geometric Methods and $(375, 34, 3)$ ”, *Proceedings of a Special Research Quarter at the Ohio State University, Spring 1993* (published by Walter de Gruyter, 1996.)
- * K. W. Smith, “Nonabelian difference sets”, chapter IV.13 in *The CRC Handbook on Combinatorial Designs*, 1996.
- * K. Mackenzie Fleming, K. W. Smith, “ $(27, 13, 6)$ designs with automorphisms of order 3”, *Proceedings of the Ninth Midwest Conference on Combinatorics, Cryptography and Computing*, special edition of *Journal of Combinatorial Mathematics and Combinatorial Computing*, 1996.
- * K. Mackenzie Fleming, K. W. Smith, “An infinite family on nonembeddable quasi-residual designs”, *Journal of Statistical Planning and Inference*, v. 73, 1998.
- * H. Fleischner, R. Molina, K. W. Smith, D. West, “The Two-Path Conjecture”, *Electronic Journal of Combinatorics*, 2002.
- * M. McNally, R. Molina, K. W. Smith, “Characterizing Randomly P_k Decomposable Graphs for $k \leq 9$ ”, *Congressus Numerantium* 156, 2003, 211-221.
- * (In addition, I supervised the undergraduate research which led to the publication: Christine Berkesch, Jeff Ginn, Erin Haller, Erin Militzer. “A Survey of Relative Difference Sets”, *Rose-Hulman Undergraduate Mathematics Journal*, v. 4, Fall 2003.)

- * S. Narayan, J. (Eustice) Russell, K. W. Smith, "The Subgraph Summability Number of a Biclique", *Congressus Numerantium* **171**, 2004, 3-11.
- * O. AbuGhneim, P. Becker, J. Mendez, K. W. Smith, "On Hadamard Difference Sets in groups of order $4p^2$ ", *Congressus Numerantium* **172**, 2005, 97-121.
- * J. A. Davis, J. Jedwab and K.W. Smith, "Proof of the Barker array conjecture," *Proc. Amer. Math. Soc.*, 2006.
- * D. Jungnickel, A. Pott, K. W. Smith, "Difference sets", a chapter in *The CRC Handbook on Combinatorial Designs*, (2nd ed.) 2006, to appear.
- * O. AbuGhneim, K. W. Smith, "Tightening Turyn's Bound for Hadamard Difference Sets", to appear in *Journal of Algebraic Combinatorics*, 2007.
- * O. AbuGhneim, K. W. Smith, "Nonabelian Groups with (96,20,4) Difference Sets," *Electronic Journal of Combinatorics*, R8 in Volume 14, January 3, 2007,

Articles In Progress

- * N. Bauer, P. Carmany, K. W. Smith, "Semiregular relative difference sets in nonabelian groups", in preparation.
- * O. GJoneski, K. W. Smith, "Nonexistence of (176, 50, 14) difference sets", in preparation.
- * J. A. Davis, K. W. Smith, "Applications of rational idempotents", in preparation.
- * M. Fulkerson, K. W. Smith, "On POS groups", in preparation.
- * C. Bhattacharya, K. W. Smith, "Perfect Ternary Arrays and all (16,6,2) difference sets", submitted.
- * O. AbuGhneim, A. Golemac, K. W. Smith, M. Vukivic, "All (96,20,4) difference sets", in preparation.

Other Publications

- * S. Narayan, K. W. Smith, "The NSF REU at Central Michigan University", Proceedings of the AMS/NSA conference on Promoting Undergraduate Research in Mathematics, 2006.
- * S. Adams, J. Davis, N. Eugene, K. Hoke, S. Narayan, K. W. Smith, "The Long-term Undergraduate Research (LURE) Model", Proceedings of the AMS/NSA conference on Promoting Undergraduate Research in Mathematics, 2006.,

Presentations

- * Flag Algebras of Symmetric Designs, American Mathematical Society annual meeting in Louisville, Kentucky, January 1984.
- * What is Combinatorics?, Bowling Green, Kentucky, March 1984.
- * Symmetric Designs with a Flag Algebra of Dimension Seven, Mt. Pleasant, MI, March 1984.
- * Symmetric Designs with a Flag Algebra of Dimension Seven, Moscow, Idaho, March 1984.
- * Association Schemes on the Flags of A Symmetric Design, American Mathematical Society regional meeting, Chicago, Illinois, March 1985.
- * The Representation Theory of a Tactical Configuration, 18th Southeastern Conference on Combinatorics, Graph Theory and Computing, Boca Raton, Florida, February 1987.
- * The Representation Theory of a Tactical Configuration, American Mathematical Society regional meeting, Kent, Ohio, April 3-4, 1987.
- * On Randomly Decomposable Graphs, MIGHTY XI Graph Theory Conference, Ypsilanti, Michigan, April 1987.
- * In Search of a (495, 39, 3) Difference Set, Nineteenth Southeastern Conference on Combinatorics, Graph Theory and Computing, Boca Raton, Florida, February 1988.
- * Teaching Number Theory with ZBasic, Second Annual Conference on Technology in Collegiate Mathematics at Ohio State University, November 1989.
- * Some Problems in Error Correcting Codes, Hope College, Holland, MI, November 1989.

- * Flag Algebras of a Symmetric Design, National Security Agency, Fort Meade, MD, June 1990.
- * Difference Sets in Groups of order 64, Center for Communications Research, Princeton, New Jersey, August 1990.
- * Random Graphs, National Security Agency, Fort Meade, Maryland, December 1990.
- * Beyond Turyn's Bound, National Security Agency, Fort Meade, Maryland, April 1991.
- * (In addition, I guided a seminar on Difference Sets at the National Security Agency and gave a number of talks on difference sets and group theory while visiting the NSA.)
- * Beyond Turyn's Bound, a $(64, 28, 12)$ difference set in a group with exponent 32, Sixth Annual Midwestern Conference in Combinatorics, Lincoln, Nebraska, October 1991.
- * Nonabelian difference sets, invited talk, AMS annual meeting, Baltimore, MD, January 1992.
- * Faculty Panel on Undergraduate Research in Mathematics, Ninth Annual Rose-Hulman Conference on Undergraduate Mathematics, March 1992.
- * A $(100, 45, 20)$ difference set, LeHigh University, April 1992.
- * Non-abelian Hadamard difference sets, NSA, June 1992.
- * Non-abelian Hadamard difference sets, invited talk, Houghton, Michigan, August 1992.
- * Difference sets in 2-groups of large exponent, invited talk, Columbus, Ohio, May 1993.
- * Extending Lander's table -- to nonabelian difference sets, invited talk, College Station, Texas, October 1993.
- * Panel on NSA's Sabbatical Program at the AMS annual meetings, Cincinnati, Ohio, January 1994.
- * Clock arithmetic and today's secret codes, Coppin State College, Baltimore, MD, February 1994.
- * Mathematical Addiction: Tracing the Disease, Virginia Union University, Richmond, VA, February 1994.
- * Error-correcting codes, CDS, modems and satellite communication, Virginia State University, Petersburg, VA, February 1994.
- * Difference Sets, Error-Correcting Codes and Factors of 2, U. of Richmond, February 1994.
- * Mathematical Addiction: Tracing the Disease, Bowie State Univ., Bowie MD, February 1994.
- * Mathematical Addiction: Tracing the Disease, Clark Atlanta Univ., Atlanta GA, March 1994.
- * Error-correcting codes, CDS, modems and satellite communication, Voorhees College, Denmark, SC, March 1994.
- * The Konigsberg Bridge and Euler Graphs (with Kirsten Fleming), Alabama State University, Montgomery, AL, March 1994.
- * Clock arithmetic and today's secret codes, Tuskegee University, Tuskegee, AL, March 1994.
- * SET -- a game in finite geometry, Coppin State College, Baltimore, MD, November 1994.
- * Factoring Hadamard Difference Sets, AMS Regional, Richmond, VA, November 1994.
- * Symmetric Designs, Difference Sets, and Nonabelian Groups, Laramie, WY, August 1995.
- * Co-directed, with Robert Liebler, A Workshop on Difference Sets, Colorado State University June 12 - August 4, 1995.
- * Mathematics and the Internet, an interactive talk for Mathematics Awareness Week, April 1997.
- * Extending the Davis-Jedwab construction to nonabelian difference sets, NATO Advanced Study Institute, Bad Windsheim, Germany, August 1998.
- * The Mathematics of Cryptology, Coppin State College, December 1998.
- * Existence questions for nonabelian groups, Colorado State University, Jan. 29, 1999.
- * Searching for $(120, 35, 10)$ difference sets, Colorado State University, Feb 12, 1999.
- * Abelian images of difference sets, Colorado State University, Feb 26, 1999.
- * New infinite families of Symmetric Designs, Colorado-Wyoming Algebraic Combinatorics Seminar, Fort Collins, CO, April 2, 1999.
- * Seminar in Difference Sets, numerous talks, Spring 1999, Colorado State University.
- * A two-week minicourse on difference sets, Colorado State University, March 1999.
- * Search Algorithms for Difference Sets, Ohio State Denison Conference, Columbus, May 2000.
- * Explorations in Elementary Number Theory, MAA conference, Mt. Pleasant, MI, May 2000.

- * Difference Sets, a workshop for undergraduate students, Mount Holyoke College, South Hadley, MA, July 2000.
- * An exhaustive search for difference sets in 2-groups, Oxford, England, Aug 2001.
- * Tightening Turyn's Bound in Hadamard Difference Sets, San Diego, Jan 2002.
- * Three undergraduate research problems in graph theory, Calvin College, Feb 2002.
- * NSF REU at Central Michigan University (with Sivaram Narayan), MUMC Conference, Grand Rapids, Feb 2002.
- * A Survey of Randomly Decomposable Graphs, Orlando, FL, November 2002.
- * Difference Sets, Relative Difference Sets and GAP, CO, February 2003.
- * Is the universe noncommutative? Commutativity and noncommutativity in combinatorial structures, Butler University, IN, April 2003.
- * Difference Sets, Relative Difference Sets and GAP, CO, February 2003.
- * A Collage of Collaboration (with Doug Lapp) MAMTE Conference, Lansing, MI, October 2003.
- * On Graph Summability, Boca Raton, FL, March 2004.
- * A Collage of Collaboration (with Azita Manouchehri) , Grand Rapids, March 2004.
- * A Collage of Collaboration (with Azita Manouchehri) Oakland University, MI, May 2004.
- * Teaching a Math of Cryptology Course, Oakland University, MI, May 2004.
- * Semiregular Relative Difference Sets in Nonabelian Groups, Newark, DE, April 2005.
- * (In addition, Oliver Gjoneski presented our joint work, Nonexistence of $(176, 50, 14)$ difference sets, at the AMS meeting in Atlanta, GA, January 2005.)
- * Fourier Analysis and Finite Groups -- Tools for Combinatorial Structures, University of Richmond, Sept 2005.
- * Barker arrays and the Barker array conjecture, University of Delaware, October 2005.
- * Groups, rings and group rings -- Tools for combinatorial structures, Fall meeting of the MD/DC/VA section of the MAA, November 2005.
- * Rational Idempotents and Cyclic Difference Sets, Sequences and Codes, Vancouver, July 2006.
- * A proof of the Barker Array conjecture, CMU, Mt. Pleasant, MI, September 2006.
- * Problem-Based, Technology-enhanced mathematics education, with A. Manouchehri, Irvine, CA, 2007
- * Fourier Analysis of Finite Groups & Its Applications to Combinatorics, Huntsville, TX, February 2007.
- * Rational Idempotents of Abelian Differences Sets, Fort Collins, CO, February 2007.
- * Fourier Analysis of Finite Groups & Its Applications to Combinatorics, Little Rock, AR, February 2007.
- * Fourier Analysis of Finite Groups & Its Applications to Combinatorics, Starkville, MS, March 2007
- * Opportunities in Undergraduate Research, Huntsville, TX, March 2007.
- * A Proof of the Barker Array Conjecture (poster), Faculty Excellence Exhibition, Mt. Pleasant, MI, March 2007.
- * Fourier Analysis of Finite Groups & Its Applications to Combinatorics",, Saginaw, MI, April 2007.
- * Longterm Undergraduate Research Experience, Huntsville, TX, November 2007.
- * Three Undergraduate Research Problems in Graph Theory, Fall 2007-Spring 2008.

Professional and Academic Affiliations

- * Member, American Mathematics Society
- * Associate Fellow, Institute of Combinatorics and its Applications
- * Member, Mathematical Association of America
- * Member, National Council of Teachers of Mathematics
- * Member, Association of Mathematics Teacher Educators

Selected References

- * **James A. Davis**, Mathematics Professor (and former department chair), University of Richmond, Richmond, VA, 23173 (phone: 804-289-8094, email: jdavis@richmond.edu)
- * **Richard Fleming**, Mathematics Professor (and former department chair), Mathematics Department, Central Michigan University, Mt. Pleasant, MI 48859 (phone: 989-774-3238, email: Richard.J.Fleming@cmich.edu)
- * **Kirsten Fleming**, Professor and Chair, Department of Mathematics, Northern Kentucky University, Highland Heights, KY 41099 (phone: 859-572-5377, email: flemingk@nku.edu)
- * **Sivaram Narayan**, Professor of Mathematics, Mathematics Department, Central Michigan University, Mt. Pleasant, MI 48859 (phone: 989-774-3566, email: Sivaram.Narayan@cmich.edu)
- * **Harriet Pollatsek**, Professor of Mathematics, Department of Mathematics and Statistics, Mt. Holyoke College, South Hadley, MA 01075 (phone: 413-538-2341, email: hpollats@mtholyoke.edu)

Additional Information

Ken is married to Janet S. Smith, CPA; they have three children: Alex (22), Timothy (19), and Daniel (12) and a daughter-in-law, Sierra (married to Alex.)

Ken is an ordained elder in the Evangelical Presbyterian Church.

Ken is faculty advisor for InterVarsity Christian Fellowship at Central Michigan University.

Ken is a soccer coach in the Mid Michigan Youth Soccer Association, U. S. Soccer Federation with an "E" coaching license. He is also a USSF certified soccer referee, grade 6.

In addition to soccer and traveling, Ken also enjoys an occasional chess game (although he is not nearly as good as he used to be!)

Last updated February 13, 2008