

College of Engineering and Science

RESUME - William F. Moss

PERSONAL DATA

Professor
Department of Mathematical Sciences
Clemson University
Clemson, SC 29634-1907
864/656-5225

EDUCATION

Ph.D., University of Delaware, 1974, Mathematics
B.S., M.I.T., 1966, Electrical Engineering

PROFESSIONAL EXPERIENCE

Clemson University, 1990- , Professor of Mathematical Sciences
Clemson University, 1983-90, Associate Professor of Mathematical Sciences
Old Dominion University, 1981-1983, Assistant Professor of Mathematics
Georgia Institute of Technology, 1974-1981, Assistant Professor of Mathematics
Naval Nuclear Power School, 1967-1971, Instructor of Physics and Mathematics
Lockheed-Georgia Company, 1966-1967, Associate Aircraft Design Engineer

CONSULTING EXPERIENCE

College of Engineering and Science, "Math Out of the Box" Project (2002-)
United Arab Emirates University, Laptop Program (2002)
Product Advisory Board, Silicon Chalk, Vancouver, BC (2001-2003)
Product Advisory Board, WebCT.com, Vancouver, BC (1998-2000)
Consultant to IMSL, Houston, Texas (1986-92), software testing.
Consultant to ICASE, NASA Langley, Langley, Virginia (1982-1985), noise reduction modeling.

MEMBERSHIPS

Member: NCTM, NSTA, ASEE, MAA

AWARDS

Award for Innovative Excellence in Teaching, Learning, and Technology, 14th
International Conference on College Teaching and Learning, April 2003
Fifth Best Full Professor, Clemson Tiger Survey, Fall 2003
Alumni Distinguished Professor, August 2006

SELECTED PUBLICATIONS.

Refereed Journal Publications

Moss, W.F., "Approximation of exterior conformal mappings," *Anales Polonici Mathematici*, **XXXV**, 55-56 (1977).

Moss, W.F. and Piepenbrink, J., "Positive solutions of elliptic equations," *Pac. J. Math.*, **75**, 219-226 (1978).

Moss, W.F. and Christensen, J "Scattering and heat transfer by a strip," *J. of Integral Equations*, **4**, 299-317 (1980).

Moss, W.F., "Fundamental solutions of degenerate or singular elliptic equations," *JMAA*, **78**, 574-587 (1980).

Moss, W.F., "Numerical solution of integral equations with convolution kernels," *J. of Integral Equations*, **4**, 253-264 (1982).

Moss, W.F., "The two-dimensional oscillating airfoil: a new implementation of the Galerkin method," *SIAM J. of Numer. Anal.*, **20**, No. 2, 391-399 (1983).

Demko, S., Moss, W.F. and Smith, P.W., "Decay rates for inverses of band matrices," *Math. Comp.*, **43**, No. 168, 491-499 (1984).

Moss, W.F. and Smith, P.W., "Generalized eigenvalue approximation for band matrices," *Approximation Theory and its Applications*, **1**, No. 2, 51-70 (1985).

Moss, W.F., "Collocation for an integral equation arising in duct acoustics," *JCP*, **64**, No. 2, 443-457 (1986).

Moss, W.F., Smith, P.W. and Ward, J.D., "Nonlinear eigenvalue approximation," *Numer. Math.*, **52**, 365-375 (1988).

Cox, C. and Moss, W.F., "Backward error analysis for a pole assignment algorithm," *SIAM J. Matrix Anal. Appl.*, **10**, No. 4, 446-457 (1989).

Riedl, C., Qian, C., Savitsky, G.B., Spencer, H.G. and Moss, W.F., "Mathematical modeling of the concentration dependence of competitive binding of counterions in polyelectrolytes," *Macromolecules*, **22**, 3982-3986 (1989).

Riedl, C., Savitsky, G.B., Spencer, H.G. and Moss, W.F., "Numerical and NMR studies of the competitive binding of counterions in polyelectrolytes," *Polymer*, **32**, No. 8, 1504-1509 (1991).

Cox, C. and Moss, W.F., "Backward error analysis for a pole assignment algorithm II: the complex case," *SIAM J. Matrix Anal. Appl.*, **13**, No. 4, 1159-1171 (1992).

Zhang, H. and Moss, W.F., "Using Parallel Banded Linear System Solvers in Generalized Eigenvalue Problems," *Parallel Computing*, **20**, 1089-1105 (1994).

Lagu, S., Bearden, G., Savitsky, G.B., Spencer, H.G. and Moss, W.F., "Numerical and experimental studies of territorial binding of counterions in polyelectrolyte solutions including the added salt case," *Polymer*, **35**, No. 15, 3268-3271 (1994).

Forney, G.P. and Moss, W.F., "Numerical characteristics of zone fire models," *J. of Fire Science and Technology*, **14**, 49-60 (1994).

Books

D.P. Diaz, D.A. Moss, W.F. Moss, E.L Lashley, S.P. Sanders, *Math Out of the Box, Developing Algebraic Logic: Grade K, Rhythm and Design; Grade 1, Together and Apart; Grade 2, Collecting and Sorting; Grade 3, Plotting and Growing; Grade 4, Signs and Symbols; Grade 5, Steps and Distance*, Carolina Biological Supply, Burlington, NC, 2005.

D.P. Diaz, P.P. King, E.L Lashley, D.A. Moss, and W.F. Moss, *Math Out of the Box, Developing Geometric Logic: Grade K, Towers and Trails; Grade 1, Symmetry and Shapes; Grade 2, Rows and Columns; Grade 3, Shapes and Paths; Grade 4, Corners and Containers; Grade 5, Conjectures and Transformations*, Carolina Biological Supply, Burlington, NC, 2006.

D.P. Diaz, D.J. Gunderson, P.P. King, E.L Lashley, D.A. Moss, and W.F. Moss, *Math Out of the Box, Developing Measurement Benchmarks: Grade K, Over and Under; Grade 1, Up and Down; Grade 2, Large and Small; Grade 3, Scales and Balances; Grade 4, Inside and Outside; Grade 5, Tools and Time*, Carolina Biological Supply, Burlington, NC, 2007.

Conference Proceedings (Reviewed)

Moss, W.F. and Moss, D.A., "Math Out of the Box: A K-5 Mathematics Curriculum and Teacher Professional Development Program," *Proceedings of the American Society of Engineering Education*, Honolulu, HI, (June 2007).

Schiff, S.D., Biggers, S.B., Benson, L.C., Ohland, M.W., Orr, M.L., and Moss, W.F., "Adapting and Implementing the SCALE-UP Approach in Statics, Dynamics, and Multivariable Calculus," *Proceedings of the American Society of Engineering Education*, Honolulu, HI, (June 2007).

Research Reports (Recent)

Moss, D.A., Diaz, D.P., & Moss, W.F. (2005). The Research Base for Math Out of the Box™. *Center of Excellence in Mathematics and Science Education, Clemson University*. Retrieved March 31, 2005, from <http://www.mathoutofthebox.org/research/researchbase.shtml>.

Other Scholarly Publications (Recent)

Moss, D.A., Diaz, D.P., & Moss, W.F. (2005). About Math Out of the Box™. *Center of Excellence in Mathematics and Science Education, Clemson University*. Retrieved March 31, 2005, from <http://www.mathoutofthebox.org/research/about.shtml>.

Moss, W. F., Pargas, R., Weaver, B., and Grimes, L., “Technology + Innovation = Pedagogy”, 14th International Conference on College Teaching and Learning, Jacksonville, FL (April 2003), http://www.math.clemson.edu/~bmoss/laptop_pedagogy/ExploringTeachTech.pdf

Moss, W.F., “Calculus III Taught as a Studio Class,” Faculty Directions, Clemson University (January 2003).

Moss, W.F., “Laptops in the Engineering Classroom,” United Engineering Foundation Conference, Davos Switzerland (August 2002), http://www.math.clemson.edu/~bmoss/uef_brief.pdf

Moss, W.F., Weaver, B., Park, W., Sherrod, L., Cartner, J., Keitzer, R., “Extending Classrooms over Electronic Bridges,” College of Engineering and Science, Clemson University (May 2000), <http://www.math.clemson.edu/~bmoss/furman.pdf>

Moss, W.F., “Developing and Implementing a Pilot Laptop Program,” College of Engineering and Science, Clemson University (Feb 2000), <http://www.math.clemson.edu/~bmoss/developC.htm>

PRESENTATIONS (Recent)

Moss, D.A., Diaz, D.P., Moss, W.F., “Math Out of the Box: A K-5 Mathematics Curriculum and Teacher Professional Development Program,” paper presented at the American Society of Engineering Education annual conference, Honolulu, HI (June 2007).

King, P.P., Gunderson, D.J., Moss, W.F., “Geometry Jigsaw,” National Science Teachers Association, St. Louis, MO (March 2007).

Moss, W.F., Diaz, D.P., “Investigating Mathematical Ideas Using Elementary Mathematics Curriculum Materials,” Joint MAA-AMS annual meeting, New Orleans, LA (January 2007).

Moss, W.F., "Math Out of the Box," Innovations in the Classroom Seminar, Department of Mathematical Sciences, Clemson University, Clemson, SC (October 2006).

Moss, W.F., "SCALE-UP," Scale-up Instructor Training, Department of Mathematical Sciences, Clemson University, Clemson, SC (July 2006).

Moss, W.F., Moss, D.A., "Developing Algebraic Thinking: Day One K-5 Vertical Model," Workshop, Educational Testing Service, Princeton, NJ (March 2006).

Moss, W.F., Moss, D.A., "Teaching and Learning in the STEM Disciplines," Colloquium, Department of Mathematics and Statistics, Texas Tech University, Lubock, TX (March 2006).

Moss, W.F., "SCALE-UP Calculus III," Innovations in the Classroom Seminar, Department of Mathematical Sciences, Clemson University, Clemson, SC (March 2006).

Moss, W.F., Ohland, M, "The SCALE-UP Approach in General Engineering and Calculus III," College of Engineering and Science Advisory Board, Clemson University, Clemson, SC (November 2005).

Moss, W.F., "Introduction to Maple 10," Innovations in the Classroom Seminar, Department of Mathematical Sciences, Clemson University, Clemson, SC (October 2005).

Moss, D.A., Moss, W.F., "Connecting Science and Mathematics through Patterns and Data," Exhibitor Workshop, National Science Teachers Association, Dallas, TX (March 2005).

Moss, W.F., Moss, D.A., "Connecting Assessments in Science and Math Classrooms," Workshop, National Science Teachers Association, Dallas, TX (March 2005).

Moss, D.A., Moss, W.F., King, P., Lashley, E., "Presenting Math Out of the Box™," Focus on Research Day, Clemson University, Clemson, SC (April 2005).

Moss, W.F., Moss, D.A., Diaz, D.P., "A Vertical Look at Data Analysis K-5," Workshop, Varennes Elementary, Anderson, South Carolina (August 2004).

Moss, W.F., Moss, D.A., "Developing Algebraic Thinking in Grades K-2" and "Developing Algebraic Thinking in Grades 3-5," SECME Annual Conference, Houston, TX (July 2004).

Moss, W.F., Moss, D.A., Diaz, D.P., "Developing Algebraic Thinking Vertically K-5," Workshop, Varennes Elementary, Anderson, South Carolina (July 2004).

Moss, W.F., Moss, D.A., “Developing Algebraic Thinking: K-5 Vertical Model,” Workshop, E. B. Morse Elementary School, Laurens, SC (May 2004).

Moss, W.F., Diaz, D.P., “Developing Algebraic Thinking in Grades K-5,” National Science Teachers Association Annual Conference, Atlanta, GA (April 2004).

Moss, W.F., Pargas, R.P., Grimes, L.W., Weaver, B.E., “Technology + Innovation = Pedagogy”, The Forum, Louisiana State University (video presentation followed by questions and answers via video conference), Baton Rouge, LA (April 2004).

Moss, W.F., Moss, D.A., “Developing Algebraic Thinking in Grades K-5,” The Second Annual Brand New Hope Technology Summit, Nassau, Bahamas (February 2004).

Moss, W.F., Pargas, R.P., Grimes, L.W., Weaver, B.E., “Delivering Content through Breeze,” Southern Educational Technology Conference (video presentation followed by questions and answers via video conference), Fayetteville, AR (January 2004).

Moss, W.F., Pargas, R.P., Grimes, L.W., Weaver, B.E., “Technology + Innovation = Pedagogy”, (paper presented by presentation Pargas), 2nd International Multimedia and Information and Communication Technologies in Education Conference, Badjoz, Spain (December 2003).

Moss, W.F., Moss, D.A., Diaz, D.P., Lashley, E., “Developing Algebraic Thinking with Patterns and Data (three hour workshop),” NCTM Regional Meeting, Charleston, SC (October 2003).

Moss, W. F., Pargas, R., Weaver, B., and Grimes, L., “Technology + Innovation = Pedagogy”, 14th International Conference on College Teaching and Learning, Jacksonville, FL (April 2003).

Moss, W. F., Sherrod, L., “Clemson’s Laptop Program and Studio Calculus III,” SUCCEED Workshop, Western Michigan University (March 2003).

Moss, W.F. and Sherrod, L., “Pilot Laptop Program,” SUCCEED-Gateway Conference, Gainesville, FL, (March 2002).

Moss, W.F., “Laptop Program Administration,” Colleges of Engineering, Business, and Information Technology, UAE U, Al-Ain, United Arab Emirates, (March 2002).

Moss, W.F., "Teaching with Laptops," Colleges of Engineering, Business, and Information Technology, UAE U, Al-Ain, United Arab Emirates, (March 2002).

Moss, W.F., "SUCCEED Teaching Effectiveness Workshop," Colleges of Engineering, Business, and Information Technology, UAE U, Al-Ain, United Arab Emirates, (March 2002).

Moss, W.F., "United States University Laptop Program," Address to Minister of Education and Provost, UAE U, Al-Ain, United Arab Emirates, (March 2002).

SPONSORED RESEARCH (Recent)

"Building a Mathematical Learning Community," SC CHE, principal investigator, YR1, \$125,000, YR2, \$93,750, YR3 pending (2006-2009).

"Adapting K-8 Curriculum Materials for Pre-Service Teacher Education," NSF CCLI, principal investigator, \$128,801, (\$12,880), (2005-2008).

"Adapting and Implementing the SCALE-UP Approach in Statics, Dynamics, and Multivariate Calculus," NSF CCLI, co- principal investigator, \$180,000, (\$45,000), (2005-2008).

"SUCCEED Years 8-10," NSF, co-principal investigator for Technology Based Curriculum Development, \$114,000, (\$114,000), (1999-2002).

GRADUATE STUDENT ADVISING

Doctoral: 1, Committee Member: 15, Masters: 15

September, 2007