

Virginia Polytechnic Institute & State University  
Department of Materials Science & Engineering  
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### *EDUCATION*

Bachelor of Science in Engineering (Materials Science & Engineering), 1987  
University of Florida, Gainesville, Florida  
Engineering Education Certificate, Complete in May 2009  
Virginia Tech, Blacksburg, Virginia

### *EMPLOYMENT*

Senior Research Associate/Instructor, Virginia Tech, 2000 to present  
Dept. of Materials Science and Engineering  
Executive Director, National Institute of Ceramic Engineers, 1994 to 2006  
Supervisor: NICE Executive Committee  
Engineer and Laboratory Manager, University of Florida, 1987 to 2000  
Department of Materials Science & Engineering  
Undergraduate Laboratory Assistant, University of Florida, 1985 to 1987  
Department of Materials Science & Engineering

### *DEPARTMENTAL ACTIVITIES/RESPONSIBILITIES*

Instructor, Materials Laboratory 2, up to 36 students in 3 sections, required course (as of August 2007)  
Supervisor for two or more (on average) senior research students per year, including honors student projects (2001 to present)  
Advisor, Materials Engineering Professional Societies (MEPS) Student Branch (2003 to present)  
Advisor, Journal of Undergraduate Materials Research (JUMR), (2004 to present)  
Advisor, American Ceramic Society Student Branch (2001-04)  
Chair, MSE Student and Staff Honorifics Committee (2008 to present)  
Supervisor, MSE Computer Services (2002 to present)  
Supervisor, MSE Website (2008 to present)  
Safety Officer (2008 to present)  
Member, MSE Undergraduate Recruitment Committee (2003 to present)  
Member, MSE Facilities Committee (2002 to present)  
Member, MSE Scholarships Committee (2008 to present)

### *PROFESSIONAL ACTIVITIES AND HONORS*

*Fellow*, National Institute of Ceramic Engineers, inducted in May 2000 (inaugural NICE Fellows Induction Ceremony, 4 inductees)  
*Fellow*, American Ceramic Society, inducted in 1996  
Link Chair for Virginia Tech, Order of the Engineer (2004 to present)  
Councilor, American Ceramic Society/National Institute of Ceramic Engineers Student Congress, 1992-2001  
Chair, Technical Program Committee, 4<sup>th</sup> World Congress on Microwave and RF Applications, Austin, TX, November 2004  
Vice Chair, Technical Program Committee, 3<sup>rd</sup> World Congress on Microwave and RF Applications, Sydney, Australia, September 2002  
Member, Microwave Working Group, inducted in Bayreuth, Germany, September 2001

Member, AMPERE, European Microwave Research Community, 2004  
Member, Alpha Sigma Mu, inducted May 2008  
Member, American Association of Engineering Societies Board of Governors (1994-2001; January 2004-December 2007); Keramos (Ceramic Engineering Honor Fraternity); Link Chair, NICE (1998 to 2008); Epsilon Lambda Chi (Engineering Leadership Circle); Ceramic Education Council

#### *PATENTS*

Microwave Treatment of Vulcanized Rubber, U.S. Patent # 6,420,457, issued 7/16/02.

#### *RELATED SYMPOSIA/PROGRAMS CHAIRED*

4<sup>th</sup> World Congress on Microwave and Radio Frequency Applications, Microwave Working Group, Austin, Texas, November 2004; Technical Program Committee Chair, Editor – Proceedings.

3<sup>rd</sup> World Congress on Microwave and Radio Frequency Applications, Microwave Working Group, Sydney, Australia, September 2002; Technical Program Vice Chair, Lead Editor – Proceedings.

“Microwaves: Theory and Application in Materials Processing III, American Ceramic Society Annual Meeting and Exposition, Cincinnati, OH, May 1-3, 1995.

#### *BOOKS*

Microwave Solutions for Ceramic Engineers, D.E. Clark, D.C. Folz, C. Folgar and M. Mahmoud, eds., American Ceramic Society, Westerville, OH (2005).

Microwave and Radio Frequency Applications, Proceedings of the Fourth World Congress on Microwave and Radio Frequency Applications, R.L. Schulz and D.C. Folz, eds., Microwave Working Group, Ltd., Arnold, MD (2005).

Microwave and RF Applications, D.C. Folz, J.H. Booske, D.E. Clark and J.G. Gerling, American Ceramic Society, Westerville, OH (2003).

Designing with Engineering Ceramics, D.E. Clark, D.C. Folz and T.D. McGee, American Ceramic Society, Inc., Westerville, OH (2002).

Ceramic Transactions - Surface-Active Processes in Materials, D.E. Clark, D.C. Folz and J.H. Simmons, American Ceramic Society, Inc., Vol. 101, Westerville, OH, (2000).

Ceramic Transactions - Microwaves: Theory and Application in Materials Processing III, D.E. Clark, D.C. Folz and R. Silbergliitt, eds., American Ceramic Society, Inc., Vol. 59, Westerville, OH, (1995).

#### *PUBLICATIONS*

“Re-Designing a Junior-Level Materials Processing Laboratory Course to Aid Students in Applying Theory to Practice,” D. Folz, C. Burgoyne, J. Terpenney and R. Goff, accepted in the Proceedings of the American Society for Engineering Education (2009).

“A Multi-University, Interdisciplinary Senior Design Project in Engineering,” P. Mellodge and D. Folz, accepted in the Proceedings of the American Society for Engineering Education (2009).

"Microwave Sintering of 8 mol% Ytria-Zirconia (8YZ): An Inert Matrix Material for Nuclear Fuel Applications," R.R. Thridandapani, C.E. Folgar, D.C. Folz, D.E. Clark, K. Wheeler, P. Peralta, *Journal of*

*Nuclear Materials*, 384 [2] 153-157 (2009).

“Effect of microwaves on the migration of lithium and silicon from lithium disilicate (Li<sub>2</sub>O-2SiO<sub>2</sub>) glass,” M.E. Lynch, D.C. Folz, D.E. Clark, *Journal of Food Additives and Contaminants* 25(4): 519–526 (April 2008).

“Use of FTIR Reflectance Spectroscopy to Monitor Corrosion Mechanisms on Glass Surfaces,” M.E. Lynch, D.C. Folz, D.E. Clark, *Journal of Non-crystalline Solids* 353:2667-2674 (August 2007).

“Microstructural Evolution in Silica Aerogel,” C. Folgar, D. Folz, C. Suchicital, D. Clark, *Journal of Non-Crystalline Solids* 353:1483-1490 (June 2007).

"Heating Rates of Silicon Carbide in a Microwave Field," P. Mellodge, D. Folz, D. Clark, J. West, Ceramic Engineering and Science Proceedings: Mechanical Properties and Performance of Engineering Ceramics and Composites II, R. Tandon, ed., vol. 27, issue 2, pp. 505-512, November 2006.

"Variable Frequency Microwave (VFM) Processing: A New Tool to Crystallize Lithium Disilicate Glass," M. Mahmoud, D. Folz, C. Suchicital, D. Clark, Z. Fathi, Ceramic Engineering and Science Proceedings: Advances in Bioceramics and Biocomposites II, M. Mizuno, ed., vol. 27, issue 6, pp. 143-153, November 2006.

Deposition and single-step processing of YBCO thick films for multilayered electronics,” M. Lynch, J. Langman, D. Clark, and D. Folz, Advances in Dielectric Materials and Electronic Devices, proceedings of the 107th Annual Meeting of The American Ceramic Society, Ceramic Transactions, Vol. 174, 69-75 (2006).

“Crystallization of Lithium Disilicate Glass by Variable Frequency Microwave (VFM) Processing,” M. Mahmoud, D. Folz, C. Suchicital and D. Clark, Microwave and Radio Frequency Applications, R.L. Schulz and D.C. Folz, eds., Microwave Working Group, Ltd., Arnold, MD, 271-77 (2005). Awarded Second Place in the Student Poster Competition.

“Drying Silica-Gel Using Microwaves,” C. Folgar, D. Folz, C. Suchicital and D. Clark, Microwave and Radio Frequency Applications, R.L. Schulz and D.C. Folz, eds., Microwave Working Group, Ltd., Arnold, MD, 166-73 (2005).

“What is Microwave Processing?” D.E. Clark and D.C. Folz, Microwave Solutions for Ceramic Engineers, American Ceramic Society, Inc., Westerville, OH, 11-34 (2004).

“Concepts and Principles of Engineering Design,” D.E. Clark, D.C. Folz and T.D. McGee, An Introduction to Ceramic Engineering Design, American Ceramic Society, Westerville, OH, 1-32 (2002).

“Microwave Synthesis of Al<sub>2</sub>O<sub>3</sub> and Al<sub>2</sub>O<sub>3</sub>/SiC Powders by Combustion Reaction,” R.H.G.A. Kiminami, M.R. Morelli, D. Folz and D. Clark, Ceramic Transactions, Vol. 111, 189-196 (2001).

“Processing Materials with Microwave Energy,” D.E. Clark, D.C. Folz and J.K. West, J. of Materials Science and Engineering, Elsevier Science Ireland, Ltd, Shannon, Co. Clare, Ireland, A287, pp. 153-58 (2000).

Morphological Characteristics of Alumina Powders Obtained Using a Microwave-Induced Combustion Reaction,” R.H.G.A. Kiminami, M.R. Morelli, D. Folz and D. Clark, presented at the XVII Congresso da Sociedade Brasileira de Microscopia e Microanalise, October 1999; ACTA MICROSCOPICA, vol.8 Supplement A, 83-84 (1999). Published in the proceedings of the XVII Congress of the Brazilian Society for Microscopy and Microanalysis X, Congress of the Brazilian Society for Cell Biology.

“Applications of Microwave Processing in Ceramics and Waste Remediation,” D.E. Clark, D.C. Folz, R.L. Schulz, A. Boonyapiwat, R.R. Di Fiore, G. Darby and K. Leiser, *Ceramic Transactions*, Vol. 80, pp. 507-514 (1997).

“Developments in Microwave Processing Technologies,” D.E. Clark and D.C. Folz, *Ceramic Engineering & Science Proceedings*, Vol. 18 [3], 531-541 (1997).

“Microwave Treatment of Emissions from Waste Materials,” R.L. Schulz, D.C. Folz, D.E. Clark, C.J. Schmidt and G.G. Wicks, *Mat. Res. Soc. Symp. Proc.* 430 *Mat. Res. Soc.*, pp. 549-554 (1996).

“Temperature Measurements During Microwave Heating,” G.J. Darby, D.E. Clark, R.R. Di Fiore, D.C. Folz, R.L. Schulz, A. Boonyapiwat and M.D. Roth and *Ceramic Transactions*, American Ceramic Society, Westerville, OH, 59 515-524 (1995).

“IR Spectra of Silica Sol-Gels During Microwave Irradiation,” M.D. Roth, R.R. Di Fiore, D.C. Folz, D.E. Clark, M.T. Vala and J. Szczepanski, *Ceramic Transactions*, American Ceramic Society, Westerville, OH, 59 549-556 (1995).

“Microwave Treatment of Emissions from the Destruction of Electronic Circuitry,” R.L. Schulz, D.C. Folz, D.E. Clark, C.J. Schmidt and G.G. Wicks, *Ceramic Transactions*, American Ceramic Society, Westerville, OH, 59 107-116 (1995).

“Microwave Technology for Waste Management Applications Including Disposal of Electronic Circuitry,” G.G. Wicks, D.E. Clark, R.L. Schulz and D.C. Folz, *Ceramic Transactions*, American Ceramic Society, Westerville, OH, 59 79-90 (1995).

“Microwave Energy for Waste Remediation Applications,” R.L. Schulz, D.C. Folz, D.E. Clark and G.G. Wicks, 347, *Mat. Res. Soc.*, Pittsburgh, PA, pp. 401-406 (1994).

“Microwave Condensation and Densification of a Porous Silica Gel,” J.P. Zhong, Z. Fathi, G.P. LaTorre, D.C. Folz and D.E. Clark, *Ceramic Engineering & Science Proceedings*, Vol. 15 [5], 1003-1010 (1994).

“Recent Developments in Microwave Processing of Ceramics,” D.E. Clark, D.C. Folz, R.L. Schulz, Z. Fathi and A.D. Cozzi, *Mat. Res. Soc. Bull.* Nov. (1993).

“Microwave Destruction/Vitrification of Electronic Components,” R.L. Schulz, D.C. Folz, D.E. Clark, and G.G. Wicks, *Ceramic Transactions*, 36, 81-88 (1993).

#### *PRESENTATIONS*

“Re-Designing a Junior-Level Materials Processing Laboratory Course to Aid Students in Applying Theory to Practice,” D. Folz, C. Burgoyne, J. Terpenney and R. Goff, to be presented at the American Society for Engineering Education Annual Conference, Austin, TX, June 2009.

“A Multi-University, Interdisciplinary Senior Design Project in Engineering,” P. Mellodge and D. Folz, to be presented at the American Society for Engineering Education Annual Conference, Austin, TX, June 2009.

“Sintering of Simulated Inert Matrix Fuel by Microwave Heating,” R.R. Thridandapani, C.E. Folgar, D.C. Folz, D.E. Clark, American Nuclear Society Annual Conference, Anaheim, CA, June 8-12, 2008.

“Microwave Sintering of Simulated Inert Matrix Fuel,” R.R. Thridandapani, C.E. Folgar, D.C. Folz, S. McGinnis, D.E. Clark, American Nuclear Society Student Conference, College Station, TX, Feb. 28-March 1, 2008.

“Temperature Measurements in a Microwave Field,” C. Folgar, D. Folz, D. Clark, S. McGinnis, GNEP Annual Conference, Phoenix, AZ, September 2007, Poster presentation

“Sintering of Inert Matrix Fuels (IMF) using Conventional and Microwave Processing Techniques,” R. Thridandapani, C. Folgar, D. Folz, D. Clark, S. McGinnis, GNEP Annual Conference, Phoenix, AZ, September 2007, Poster presented; won first place in Fuels Category

“Temperature Measurements in a Microwave Field,” C. Folgar, D. Folz, D. Clark, S. McGinnis, MS&T, Detroit, October 2007, Poster presentation

“Sintering of Inert Matrix Fuels (IMF) using Conventional and Microwave Processing Techniques,” R. Thridandapani, C. Folgar, D. Folz, D. Clark, S. McGinnis, MS&T, Detroit, October 2007, Poster presentation

“The Shape of Aerogel Pores,” C. Folgar, D. Folz, C. Suchicital and D. Clark, Materials Science and Technology 2006 Conference and Exhibition, General Session, Cincinnati, OH, October 2006.

“Determination of Crystallinity in Lithium Disilicate Glass-Ceramics by Fourier Transform Infrared Spectroscopy (FTIR),” M.M. Mahmoud, C.E. Folgar, D.C. Folz and D.E. Clark Materials Science and Technology 2006 Conference and Exhibition, Glass and Optical Materials Symposium, Cincinnati, OH, October 2006.

“Potential Advantages of Microwave Processing,” D. Folz and D. Clark, *Invited talk*, presented at the National Academy of Engineering Workshop on Immediate Energy Savings via Microwave Usage in Major Materials Technologies, Penn State University, State College, PA, June 2006.

“Microwave Energy for Crystallization of Glass and Waste Remediation,” D. Clark, D. Folz, M. Mahmoud, C. Suchicital and M. Lynch, *Invited talk*, presented at the INDO-US workshop on Microwave Processing of Materials, Mumbai, India, February 2006.

“Microwave Processing of Materials,” D.E. Clark and D.C. Folz, presented at the 10<sup>th</sup> International Ceramics Congress & 3<sup>rd</sup> Forum on New Materials, Florence, Italy, July 14-18, 2002.

"Applications of Microwave Energy for Waste Remediation," R.L. Schulz, D.C. Folz, D.E. Clark, R.M. Hutcheon and G.G. Wicks, published in the proceedings of the 28th Microwave Power Symposium, International Microwave Power Institute, Montreal, Quebec, Canada, July (1993).

#### *PERSONAL ACTIVITIES/INTERESTS*

VIRTUS Certification, original training received 3/5/2005, certification is current.

Guitars (playing and building)

Crossfit Functional Fitness Training