

Scott Speakman

Publications:

N.D. Hutson, S.A. Speakman, and E.A. Payzant, "Structural effects on the high-temperature absorption of CO₂ on a synthetic hydrotalcite," *Chem. Mater.*, in press

S.A. Speakman, R.D. Carneim, E.A. Payzant, and T.R. Armstrong, "Development of proton conductors using pyrochlore-perovskite phase boundaries", *J. Matls. Eng. Perf.* **13**, 303-308 (2004)

A. Kulkarni, J. Dong, P. Fuierer, S.A. Speakman, and E.A. Payzant, "Synthesis of a nanocrystalline YSZ-SDC heterophase thin film and studies on its electrical conductivity and structural stability", in *Inorganic Membranes: Proceedings of 8th International Conference on Inorganic Membranes* [F.T. Akin and Y.S. Lin, eds.], Adams Press, Chicago (2004)

F. Guazzone, E.A. Payzant, S.A. Speakman, and Y.H. Ma, "On the Alloying Process of a Pd-Cu bi-layer: beta phase nucleation", in *Inorganic Membranes: Proceedings of 8th International Conference on Inorganic Membranes* [F.T. Akin and Y.S. Lin, eds.], Adams Press, Chicago (2004)

Melanie J Kirkham, Scott A Speakman, and Claudia J Rawn, "Quantification of the Consequences of using Parallel-Beam Optics Combined with Linear Position Sensitive Detectors," in *Advances in X-ray Analysis, vol. 47: Proceedings of the 52nd Annual Denver X-ray Conference*, 2003.

M.S. Peterson, S.A. Speakman, and C.A. Say, "High Temperature X-ray Diffraction Study of Reaction Rates in Ceramics", *Advances in X-ray Analysis, vol 46: Proceedings of the 51st Annual Denver X-ray Conference*, 2002.

S.A. Speakman, V.B. Modi, M.S. Haluska, and S.T. Misture, "Use of In-situ XRD to Develop Conducting Ceramics with the Aurivillius Crystal Structure," *Advances in X-ray Analysis, vol 45: Proceedings of the 50th Annual Denver X-ray Conference*, 45, pp 117-22 (2002).

M.S. Haluska, S.A. Speakman, and S.T. Misture, "In-situ XRD to Optimize Powder Synthesis of Aurivillius Phases," *Advances in X-ray Analysis, vol 45: Proceedings of the 50th Annual Denver X-ray Conference*, 45, pp 110-6 (2002).

S.A. Speakman, J. W. Richardsosn, B. J. Mitchell, and S. T. Misture, "In-situ Diffraction Study of BA₂in₂O₅", *Solid State Ionics*, 149 247-259 (2002)

S.A. Speakman, J. W. Richardsosn, B. J. Mitchell, and S. T. Misture, "In-situ X-ray and neutron diffraction study of BA₂in₂O₅", in *EPDIC 7: European Powder Diffraction Conference, Materials Science Forum*, 378 336-339 (2001)

A.G. Clare, A.B. Schrader, S.T. Mixture, S.A. Speakman, and K. Richardson, "The Effect of Water Content on Neodymium Doped Fluorozirconate and Fluoroaluminate Glasses," *Proceedings of the International Society of Optical Engineering*, SPIE, Paper 4102-26, Volume 4102, 2000.

Papers in review

M. Price, S.A. Speakman, E. A. Payzant, T. M. Nenoff, J. Dong, and X. Gu, "Structural Stability of a Nanocrystalline YSZ-SDC Heterophase System and Its Effect on the Electrical Conductivity", *Journal of the American Ceramic Society*, submitted

M. Tokarz, W. D. Porter, S. A. Speakman, and J. Biello, "Stability of Ni-based Bulk Metallic Glasses", to appear in *Bulk Metallic Glasses* [P.K. Liaw and R.A. Buchanan, eds.], TMS, Warrendale, PA

J. H. Edgar, J. O. Schmitt, L. Liu, R. Nagarajan, T. Szyszko, S. Podsiadlo, G. Wojchick, H. M. Meyer, and S. A. Speakman, "Close-Spaced Vapour Transport Crystal growth of BP Crystals," *Journal of Materials Science: Materials in Electronics*, submitted

S. A. Speakman, W. D. Porter, M. A. Spurrier, and C. L. Melchier, "Thermal Expansion and Stability of Cerium-doped Lu_2SiO_5 ," *Journal of Crystal Growth*, submitted

M. L. Tokarz, S. A. Speakman, W. D. Porter and J. C. Bilello, "Stability of Ni-based Bulk Metallic Glasses", *Metall. & Mater. Trans.*, submitted

Theses:

The Crystal Chemistry of Brownmillerite and n=3 Aurivillius-type Ceramic Conductors for Fuel Cell Applications, Ph.D. Thesis, Alfred University, NY, 2002.

Computational and Experimental Investigation of Brownmillerite-type Conducting Ceramics, M.S. Thesis, Alfred University, NY, 1999.

Specific Particle Erosion of Plasma-Sprayed Partially Stabilized Zirconia and ZrO_2 -18 TiO_2 -10 Y_2O_3 Thermal Barrier Coatings, B.S. Thesis, Alfred University, NY, 1996.

Presentations:

F. Guazzone, E. A. Payzant, S. A. Speakman, and Y.H. Ma, "Size and growth of Nanocrystals and Hydrogen Permeation in Electroless plated Composite Pd/porous stainless steel Membranes," 2004 EUROMEMBRANE conference, 9/28-10/1/04, Hamburg, Germany

C. L. Melcher, M. P. Maskarinec, M. A. Spurrier, R. Nutt, L. F. Allard, S. A. Speakman, and D. A. Blom, "Characteristics of $(\text{Lu}_{1-x}\text{Y}_x)_2\text{SiO}_5$;Ce Single Crystals," 14th International Conference on Crystal Growth, 8/9-13/2004, Grenoble, France

S. A. Speakman, E. A. Payzant, and T. R. Armstrong, "Using Structure-Property Relationships to Select Among Candidate Systems for High-Temperature Proton Conductor Development," 2004 Denver X-Ray Conference, 8/2-8/6/04, Steamboat Springs, CO

Payzant, E.A., Speakman, R. D. Carneim, "Long-range and Short-range Ordering in Y-Doped $\text{La}_2\text{Zr}_2\text{O}_7$," Denver X-ray Conference, Steamboat Springs, CO 8/2-6/04

Payzant, E. A., S. A. Speakman, "In-situ HTXRD Characterization for Thin Films," Denver X-ray Conference, Steamboat Springs, CO 8/2-6/04

Rawn, C. J., H. J. Schneibel, S. A. Speakman, J. Howe, B. C. Chakoumakos, L.M.D. Cranswick, I. P. Swainson, "Diffraction Studies of NaAlH_4 ," ACA Meeting 7/17-22/04, Chicago, IL

Payzant, E.A, S. A. Speakman, R. D. Carneim, T. R. Armstrong, "Studies on Long range and Short Range Ordering in Y-doped $\text{Al}_2\text{Zr}_2\text{O}_7$," 2nd American Conference on Neutron Scattering, College Park, MD 6/6-10/04

Kulkarni, J. Dong, P. A. Fulerer, and S. A. Speakman, "Synthesis of a Nanocrystalline YSZ-SDC Heterophase thin Film and Studies on its Electrical Properties and Structural Stability", 8th International Conference on Inorganic Membranes, 7/18-21/04, Cincinnati, OH

F. Guazzone, E. A. Payzant, S. A. Speakman, and Y.H. Ma, "On the alloying process of a Pd-Cu bi-layer: beta phase nucleation," 8th International Conference on Inorganic Membranes, 7/18-21/04, Cincinnati, OH

T. W. Wilson, H. Choo, S. A. Speakman, and P.K. Liaw, "Mechanical Behavior of Consolidated Nanocrystalline Aluminum Alloys Prepared via Mechanical Alloying," MRS Fall 2003 Conference, 12/1-12/5/2003, Boston, MA

S. A. Speakman, E. A. Payzant, R. D. Carneim, and T. R. Armstrong, "Combing PDF and Rietveld Analyses to Study Defect Structures in a doped-Pyrochlore", 1st ANSWER workshop, 11/16-20/2003 Knoxville, TN.

Speakman, S. A., R. D. Carneim, T. R. Armstrong, and E. A. Payzant, "Development of Proton Conducting Materials Using a Pyrochlore-Perovskite Phase Boundary," ASM Conference, 10/13-16-03, Pittsburg, PA

S. A. Speakman, R. D. Carneim, T. R. Armstrong, E. A. Payzant, "In situ XRD to Evaluate the Stability of Novel Proton Conduction Materials", Denver X-ray Conference, Colorado Springs, CO 8/48/2003

S. A. Speakman, M. J. Kirkham, and C. J. Rawn, "Quantification of the Consequences of Using Parallel-Beam Optics Combined with Linear Position Sensitive Detectors", Denver X-ray Conference, Colorado Springs, CO 8/4-9/2003.

S. A. Speakman, C. R. Hubbard, L. F. Allard, W. D. Porter, M. A. Spurrier, and C. L. Mechier, "In-situ X-ray Diffraction Study of Lu_2SiO_5 Crystals for PET Scintillation Detectors", American Crystallographic Association 2003 Annual Meeting, 7/26-31/2003, Covington, KY

C. R. Hubbard, S. A. Speakman, J. Bai, E. A. Payzant, C. J. Rawn, and T. R. Watkins, R. A. Peascoe, O.B. Cavin, "The Diffraction User Center at the High Temperature Materials Laboratory of Oak Ridge National Laboratory, " American Crystallographic Association 2003 Annual Meeting, 7/26-31/03, Covington, KY.

Speakman, S.A., C.R.. Hubbard, M. A. Spurrier, and C. L. Melcher, "In-Situ X-ray Diffraction Studies of Lu_2SiO_5 , Crystals for PET Scintillation Detectors," Annual ACA meeting Covington, KY, 7/26-31/2003

C. R. Hubbard, S. A. Speakman, J. Bai, E. A. Payzant, C. J. Rawn, and T. R. Watkins, "In situ Powder Diffraction in High Temperature Environments", NSLS Users' Meeting Workshop-Frontiers on Powder Diffraction, 5/18/03, BNL, NY.

Speakman, S.A., R. L. Bryson, and E. A. Payzant, "Temperature calibration of High temperature X-ray Diffractometers Using Thermal expansion Standards, ICDD poster Session 3/18/2003, Philadelphia, PA

Speakman, S. A., R. D. Carneim, T. R. Armstrong, and E. A. Payzant," Development of Proton Conducting Materials Using a Pyrochlore-Perovskite Phase Boundary," ASM Conference, 10/13-16-03, Pittsburg, PA

Speakman, S. A., R.L. Bryson, E. A. Payzant, "Temperature Calibration of High Temperature X-Ray Diffractometers Using Thermal Expansion Standards," Denver X-ray Conference, Colorado Springs, CO, 7/27-8/2/02

Speakman, S. A., E. A. Payzant ,and J.Bai "Resolving Discrepancies in the Strontium Zirconate structure using a new Capillary Furnace," 105th American Ceramic Society Meeting and Exposition, Long Island, NY 11/20/02-11/22/2002