

Jay H. Baltisberger

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Education

Ph.D. Physical Chemistry, Dissertation: *Advances and Applications of Dynamic-Angle Spinning Nuclear Magnetic Resonance* with Professor A. Pines filed and approved July 22, 1993 at the University of California, Berkeley, awarded December 15, 1993. GPA: 3.98 / 4.00.

A.B. Chemistry and Physics Majors and Mathematics Minor, *Summa Cum Laude*, Wabash College, May 1989. GPA: 3.87 / 4.00, class rank: 6 / 182.

Positions and Appointments

Associate Professor - Berea College, Berea KY (May 2001 to present).

Fulbright Research Scholar – CNRS/ENS-Lyon, Lyon, France (October 2001 to March 2002). Performed research with L. Emsley group studying magic-angle spinning NMR experiments.

Assistant Professor - Berea College, Berea KY (August 1993 to May 2001).

Research Assistant - University of California (August 1989 to July 1993); performed doctoral research under A. Pines studying solid state dynamic-angle spinning.

Graduate Student Instructor - University of California; head T.A. for Introductory chemistry (fall 1990 and fall 1991); Introductory chemistry laboratory (fall 1989).

Counselor - National Youth Science Camp, Bartow, West Virginia, (summer 1989).

Undergraduate Research Assistant - University of Utah Chemistry Department (summer 1988); solid state NMR research. Idaho National Engineering Laboratory (summer 1987); theoretical plasma physics research. University of North Dakota Energy Research Center (summer 1986); coal ash deposit research with surface techniques.

Professional Societies

Phi Lambda Upsilon (Chemistry Honor Society); American Chemical Society (ACS); American Physical Society (APS); National Council on Undergraduate Research (NCUR); Mineralogical Society of America (MSA); Project Kaleidoscope Faculty 21 Class of 95 (PKAL-F21)

Honors and Awards

National Science Foundation Graduate Research Fellowship in Chemistry – 1989; Phi Beta Kappa – 1989; Wabash College Lewis Mackintosh Graduate Fellowship – 1989; Wabash College George Britton Chemistry Award – 1989; Wabash College Technical Theater Design Prize - 1989, 1988; Wabash College H.Q. Fuller Physics Award – 1988; Wabash College Honor Scholar – 1985; National Merit Scholar Finalist – 1985; Bausch and Lomb Science Award – 1985; North Dakota Delegate - National Youth Science Camp - 1985

Grants (including institutional match)

American Chemical Society - Petroleum Research Foundation C Research Grant, 2001 (co-PI with P. Shapiro, University of Idaho, \$60,000)

National Science Foundation – Instrumentation for Laboratory Instruction Grant, 1998 (\$200,000)
Appalachian Colleges Association Mellon Research Grants, 1998 (\$8,500)
Appalachian Colleges Association Mellon Research Grants, 1997 (\$5,500)
American Chemical Society - Petroleum Research Foundation GB Research Grant, 1997 (\$20,000)
Appalachian Colleges Association Mellon Research Grants, 1996 (\$7,000)
Research Corporation Cottrell College Grant, 1995 (\$45,000)
Julian Capps and Gerrit Levey Memorial Research Fellowship, 1994 (\$5,400)
Camille and Henry Dreyfus Faculty Start-Up Program for Undergraduate Institutions, 1993 (\$10,000)
Berea College Start-up Grant, 1993 (\$12,000)

Publications

Multi-dimensional Magnetic Resonance Imaging in a Stray Magnetic Field, J.H. Baltisberger, S. Hediger, L. Emsley, *Journal of Magnetic Resonance*, **172**, 79-84 (2005)

Multiple-Quantum Magic-Angle Spinning and Dynamic-Angle Spinning NMR Spectroscopy for Quadrupolar Nuclei, S. Wang, Z. Xu, J.H. Baltisberger, L.M. Bull, J.F. Stebbins, A. Pines. *Solid State Nuclear Magnetic Resonance*, **8**, 1-16 (1997).

Triple-Quantum Two-Dimensional ²⁷Al Magic-Angle Spinning Nuclear Magnetic Resonance Spectroscopic Study of Aluminosilicate and Aluminate Crystals and Glasses, J.H. Baltisberger, Z. Xu, J.F. Stebbins, S. Wang, A. Pines. *Journal of the American Chemical Society*, **118**, 7209-7214 (1996).

Solid-State ¹⁷O Magic-Angle and Dynamic-Angle Spinning NMR Study of the SiO₂ Polymorph Coesite, P.J. Grandinetti, J.H. Baltisberger, I. Farnan, J.F. Stebbins, U. Werner and A. Pines. *Journal of Physical Chemistry*, **99**, 12341-12348 (1995).

Chemical Structure and Oxygen Dynamics in Ba₂In₂O₅, S.B. Adler, J.A. Reimer, J.H. Baltisberger and U. Werner, *Journal of the American Chemical Society* **116**, 675-681 (1994).

Local Structure and Oxide-ion Motion in Defective Cubic Perovskites, S.B. Adler, S.L. Russek, J.A. Reimer, M. Fendorf, A. Stacy, Q. Huang, A. Santoro, J. Lynn, J.H. Baltisberger and U. Werner, *Solid State Ionics*, **68**, 193-211 (1994).

Cross Polarization Dynamic-Angle Spinning of ¹⁷O in L-Alanine, S.L. Gann, J.H. Baltisberger, E. W. Wooten, H. Zimmermann and A. Pines, *Bulletin of Magnetic Resonance* **16**, 68 (1994).

Cross Polarization Under Dynamic-Angle Spinning Conditions, J.H. Baltisberger, S.L. Gann, P.J. Grandinetti and A. Pines, *Molecular Physics* **81**, 1109-1124 (1994)

Sidebands in Dynamic-Angle Spinning NMR, P.J. Grandinetti, Y.K. Lee, J.H. Baltisberger, B.Q. Sun and A. Pines, *Journal of Magnetic Resonance A* **102**, 195-204 (1993).

Pure Absorption-Mode Lineshapes and Sensitivity in Two-Dimensional Dynamic-Angle Spinning NMR, P.J. Grandinetti, J.H. Baltisberger, A. Llor, Y.K. Lee, U. Werner and A. Pines, *Journal of Magnetic Resonance A* **102**, 72-81 (1993).

Dynamic-Angle Spinning Without Sidebands, S.L. Gann, J.H. Baltisberger and A. Pines, *Chemical Physics Letters* **210**, 405-410 (1993).

Identification of the Disorder in Network Modified Silicate Glasses, I. Farnan, P.J. Grandinetti, J.H. Baltisberger, J.F. Stebbins, U. Werner, M.A. Eastman and A. Pines, *Nature* **358**, 31-35 (1992).

Isotropic Chemical Shifts and Quadrupolar Parameters for Oxygen-17 Using Dynamic-Angle Spinning NMR, K.T. Mueller, J.H. Baltisberger, E.W. Wooten and A. Pines, *Journal of Physical Chemistry* **96**, 7001-7004 (1992).

^{87}Rb Dynamic-Angle Spinning NMR Spectroscopy of Inorganic Rubidium Salts, J.H. Baltisberger, S.L. Gann, E.W. Wooten, T.H. Chang, K.T. Mueller and A. Pines, *Journal of the American Chemical Society* **114**, 7489-7493 (1992).

Sidebands in Dynamic-Angle Spinning (DAS) and Double-Rotation (DOR) NMR, B.Q. Sun, J.H. Baltisberger, Y. Wu, A. Samoson and A. Pines, *Solid State Nuclear Magnetic Resonance* **1**, 267-295 (1992).

Polyethylene Crystallinity from Static, Solid-State NMR Spectra, C.D. Hughes, N.K. Sethi, J.H. Baltisberger and D.M. Grant, *Macromolecules* **22**, 2551-2554 (1989).

Seminars

“Modifications to the Solid-State NMR Inadequate Experiment”, MUACC Conference, The Ohio State University, Columbus, OH, October, 2004

“Coupling Liquid and Solid State NMR to the Undergraduate Curriculum”, AUREMN Conference, 1st Brazil/Portugal NMR Meeting, Rio De Janeiro, Brazil, May, 2001

“Extracting Order from Disorder: Using NMR Spectroscopy”, Eastern Kentucky University, Richmond, KY, March, 2000

“Extracting Order from Disorder: Using NMR Spectroscopy”, Berea College, Berea, KY, October, 1999

“Spin Gymnastics – Unusual Experiments with NMR in the Undergraduate Curriculum”, Centre College, Danville, KY, June, 1999

“Introduction to Solid-State NMR and Novel Applications to Glasses”, University of Cincinnati Chemistry Department Seminar, Cincinnati, OH, February, 1997

“Introduction to Solid-State NMR and Novel Applications to Glasses”, University of North Dakota Chemistry Department Seminar, Grand Forks, ND, February, 1997

"Introduction to Dynamic-Angle Spinning NMR," Berea College Chemistry Department Seminar, Berea, KY, February, 1993.

"Novel Applications of Dynamic-Angle Spinning NMR," Mount Holyoke College Chemistry Department Seminar, South Hadley, MA, January 1993.

"Characterization of Disorder in Network Modified Silicate Glasses Using Dynamic-Angle Spinning NMR," 26th Congress Ampere on Magnetic Resonance, Athens, Greece, September, 1992.

" ^{17}O Dynamic-Angle Spinning NMR Studies of Silicate Glasses," 1991 American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 1991.