

VITA
Spring 2008

NAME Robert Franklin Marzke

MAILING ADDRESS Department of Physics
Arizona State University
Tempe, AZ 85287-1504
(email: robert.marzke@asu.edu)

AFFILIATIONS Department of Physics
School of Materials
Arizona State University

TELEPHONE Voice: 480 965-6197
FAX: 480 965-7954

BIRTH DATE October 19, 1938, Worcester, MA

PROFESSIONAL PREPARATION

Princeton University	Physics	A.B., 1959	
Columbia University	Physics	Ph.D., 1966	
Postdoctoral: University of North Carolina	Solid State Physics		1966-1970

POSITIONS Associate Professor of Physics, Arizona State University, 1976-present.
Assistant Professor of Physics, Arizona State University, 1970-1976.

APPOINTMENTS Associate Director, College of Liberal Arts Nuclear Magnetic Resonance Facility, 2006-present.

REFEREED PUBLICATIONS (selected)

Five recent papers:

- “Lanthanum phosphate calcium aluminate glasses: synthesis, ^{27}Al and ^{31}P NMR, and Raman spectroscopy”, R.F. Marzke, S. Boucher, G. Wolf, J. Piwowarczyk and W. Petuskey, J. Europ. Ceram. Soc., to appear in June 2008.
- “Aerosol synthesized mesoporous silica containing high loading of alumina and zirconia”, M. T. Bore, R. F. Marzke, T.L. Ward, A.K. Datye, J. Mater. Chem. 15, 5022-5028 (2005).
- “Electron structure and temperature-dependent shifts in ^{133}Cs NMR spectra of $\text{Cs}_8\text{Ge}_{136}$ clathrate”, J. Gryko, R.F. Marzke, G.A. Lamberton Jr., T.M. Tritt., M. Beekman and G.S. Nolas, Phys. Rev. B 71, 115208/1-115208/7 (2005).
- “Al motion rates in levitated, molten Al_2O_3 samples, measured by pulsed gradient spin echo ^{27}Al NMR”, R.F. Marzke, J. Piwowarczyk, P.F. McMillan, G.H. Wolf. J. Europ. Ceram. Soc. 25, 1325-1332 (2005).
- “Melt and glass structure in the Al_2O_3 -CaO-LaPO₄ system studied by ^{27}Al and ^{31}P NMR, and by Raman scattering”, S. Boucher, J. Piwowarczyk, R.F. Marzke, B. Takulapalli, G.H. Wolf, P.F. McMillan, W.T. Petuskey. J. Europ. Ceram. Soc. 25, 1333-1340 (2005).

Other refereed papers:

- “LiMOB, an unsymmetrical nonaromatic orthoborate salt for nonaqueous solution electrochemical applications”, W. Xu, A.J. Shusterman, R. Marzke and C. Austen Angell. J. Electrochem. Soc. 151, A632-A638 (2004).

- “Structure of Orthoborate Anions and Physical Properties of their Lithium Salt Non-Aqueous Solutions”, W. Xu, A.J. Shusterman, M. Videa, V. Velikov, R. Marzke and C.A. Angell. J. Electrochem. Soc. 150, E74-E80 (2003).
- “Characterization of H and Cu mordenites with varying SiO₂/Al₂O₃ ratios, by optical spectroscopy, MAS NMR of ²⁹Si, ²⁷Al and ¹H, temperature programmed desorption and catalytic activity for nitrogen oxide reduction”, V. Petranovskii, R.F. Marzke, G. Diaz, A. Gomez, N. Bogdanchikova, S. Fuentes, N. Katada, A. Pestryakov and V. Gurin, in Studies in Surfaces and Catalysis. Proceedings of the 2nd FEZA Conference, Taormina, Italy, September 2002 (Elsevier).
- ¹³³Cs and ²³Na NMR Studies of Cs₈Na_xGe₁₃₆ Clathrates”, R.F. Marzke, G.S. Nolas and J. Gryko. Mat. Res. Soc. Symp. Proc. 691, G14.1-G14.6 (2002).
- “High Li⁺ Self-Diffusivity and Transport Number in Novel Electrolyte Solutions”, M. Videa, W. Xu, B. Geil, R.F. Marzke and C.A. Angell. Journal of the Electrochemical Society 148, A1352-A1356 (2001).
- “A Low-density Framework Form of Crystalline Silicon with a Wide Optical Bandgap”, J. Gryko, P.F. McMillan, R.F. Marzke, G.K. Ramachandran, D. Patton, S.K. Deb and O.F. Sankey, Phys. Rev. B 62, 7707-7710 (2000). (Rapid Communication).

PRESENTATIONS AND SEMINARS (recent, selected)

1. "Motion from NMR", R.F. Marzke, seminar (invited), Department of Physics, ASU, November 27, 2007.
2. "Synthesis and structure of the new glasses in the calcium aluminate-La monazite system, studied by NMR of ²⁷Al and ³¹P and by Raman scattering", R.F. Marzke, S. Boucher, G.H. Wolf, J. Piwowarczyk, W.T. Petuskey, Gordon Conference on Ceramics, 2007, Andover, NH, August 5, 2007 - August 10, 2007..
3. "Investigating geological sequestration reaction processes under In Situ process conditions", A.V. Chizmeshya, G.H. Wolf, M.J. McKelvy, R.F. Marzke, N. Ito, H. Bearat, B. 32nd International Technical Conference on Coal Utilization and Fuel Systems, Clearwater, FL, published in proceedings, May 7, 2007 - May 10, 2007.
4. "Protic salt polymer membranes: high-temperature water-free proton conductors", D. Gervasio, R.F. Marzke, DOE hydrogen Program Review 2007, Washington, D.C., April 15, 2007 - April 16, 2007.
5. "Locations of metal ions in the new glasses in the calcium aluminate-monazite system, studied by NMR of ²⁷Al and ³¹P and by Raman scattering", R.F. Marzke, G.H. Wolf, S. Boucher, S., J. Piwowarczyk, W.T. Petuskey, American Physical Society March Meeting, Meeting, Denver, CO, March 5, 2007 - March 9, 2007.
6. "Lanthanum phosphate calcium aluminate glasses: synthesis and characterization by ²⁷Al and ³¹P NMR and by Raman spectroscopy", R.F. Marzke, G.H. Wolf, S. Boucher, J. Piwowarczyk, and W.T. Petuskey, 2nd Directionally Solidified Eutectic Ceramics Workshop, Kyoto, Japan, December 4-6, 2006.
7. "Application of NMR to the direct measurement of diffusivities and activities of CO₂ and other dissolved species under geological and mineral sequestration conditions," Emmanuel Soignard, Robert Marzke, Jeremy Piwowarczyk, Jason Diefenbacher, and Michael McKelvy, presented at the 31st International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, Florida, May 21-25, 2006.
8. "Laboratory Investigation of Fluid/Solid Sequestration Reaction Processes under In Situ Sequestration Process Conditions," Michael J. McKelvy, Andrew V.G. Chizmeshya, Emmanuel Soignard, Robert Marzke, George Wolf, Hamdallah Béarat, and Brandon Doss, presented at the 31st International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, Florida, May 21-25, 2006.
9. "New glasses in the alumina-calcia-monazite (LaPO₄) system: structural evidence from NMR, Raman scattering and thermal properties", R.F. Marzke, S. Boucher, J. Piwowarczyk and G.H. Wolf, March American Physical Society Meeting, Baltimore, March 13-17, 2006.

10. "NMR: basics and some current applications, with an introduction to laboratories at ASU", R.F. Marzke, Physics Department Graduate Research Seminar, April 2006.
11. "Chemical structure of molten and solid alumina-based ceramic materials: an NMR and Raman scattering study", R.F. Marzke, S. Boucher, J. Piwowarczyk, W.T. Petuskey, G.H. Wolf. ASU-Industry seminar, sponsored on campus by Lockheed-Martin. November 15, 2005.
12. "From melt to glass in the Alumina-Calcia-Monazite System: Monitoring Structure via NMR from 300 to 2800 K, and by Raman Scattering" (invited), R.F. Marzke, S. Boucher, J. Piwowarczyk, W.T. Petuskey, G.H. Wolf. Pacific Rim Conference, American Ceramic Society, Maui, Hawaii, September 2005.
13. "Novel aluminate and phosphate glasses and their melts, studied by Raman scattering and NMR: is a glass the same as a frozen melt?" R.F. Marzke, S. Boucher, G.H. Wolf, J. Piwowarczyk and W.T. Petuskey. Soft Matter Seminar, Physics and Astronomy Department, ASU, Tempe, AZ, September 2005.
14. "Novel melts and glasses in the alumina-calcia-monazite system: structural determination and Al motion rate measurements in molten samples" (invited), R. F. Marzke, S. Boucher, J. Piwowarczyk, W.T. Petuskey, G.H. Wolf. 16th American Conference on Crystal Growth and Epitaxy of the American Association for Crystal Growth, Big Sky, MT, July 10-14, 2005.
15. "Ultra High-Temperature ²⁷Al NMR and Raman Studies of Bonding and Internal Motions in Molten and Solid Ceramic Samples" (invited). R.F. Marzke, G.H. Wolf, J. Piwowarczyk and S. Boucher, 29th International Conference on Advanced Ceramics and Composites, American Ceramic Society, Cocoa Beach, FL, January 23-28, 2005.

CONFERENCES CHAIRED/ORGANIZED

Three American Physical Society March Meeting Symposia (3hours, five speakers) in March of 2005, 2006 and 2007. Titles were as follows.

1. 2005 (Los Angeles) "Functional ceramics: the nano/microstructure-property relationship in electronic, optical, biological and structural materials"
2. 2006 (Baltimore) "New Functionalities in Glasses and Nanomaterials"
3. 2007 (Denver) "Towards Medium Temperature Proton Conductors for Fuel Cell Applications"

ADVISING (External to ASU)

Consultant for NMR in Municipal Water Quality Research Investigation headed by P. Westerhoff (PI), in the Department of Civil and Chemical Engineering, ASU. (2003-2005)

Advisor for hour-long show on Scientific American Frontiers, with M.W. Marzke and Alan Alda, entitled "Life's Big Questions". Filmed at ASU, January, 2000 and aired in December, 2000.

Consultant for M.W. Marzke's televised segment for a Discovery Channel show entitled "The Ultimate Guide to the Human Body". Filmed at Mayo Clinic, Rochester, MN September 25-28, 1999.

GRANTS – UNIVERSITY

Total awarded, towards improving undergraduate laboratory teaching: \$28,949

"A Program to Equip Physics Advanced Instructional Laboratories with Modern Workstations", \$14,449, 1996
 "Acquisition of a Pedagogical Pulsed NMR Spectrometer for the Physics Advanced Laboratories, \$14,500, 1996

GRANTS – EXTERNAL

CURRENT

“*In Situ* Investigations of Mechanisms that Govern CO₂ Mineral Sequestration Reaction Processes,” U.S. Department of Energy, three years, 06/01/06 – 05/31/09, \$528,435. PI: A. Chizmeshya, Co-PIs: G. H. Wolf, R. Marzke (continuation and expansion of DOE grant listed below under Past Grants).

“Protic Salt Polymer Membranes: High-Temperature, Water-Free Proton Conductors”
U.S. Department of Energy, five years, 1/15/06 – 1/14/11, \$1,500,000. PI: D. Gervasio (AZ Biodesign). Co-PIs: C.A. Angell, W. Youngs, J. L. Yarger, R.F. Marzke

“Laser-heated Gradient NMR Studies of Ceramic Liquids”, National Science Foundation, three years, 2002-5, \$210,000. 2-year extension to 2007. PI: R.F. Marzke. Co-PI: G.H. Wolf

“IGERT: Musculoskeletal and Neural Adaptations in Form and Function”, National Science Foundation, 2000, five years, \$2.7 M. PI is J.He, Bioengineering Program at ASU. Co-PIs: eleven investigators including myself, from several ASU departments and from Barrow Neurological Institute, Phoenix.

PENDING

Marzke, Robert F, Petuskey, William T, Wolf, George H, Yarger, Jeffery Lynn, 08039928, "New Directions in High-Temp NMR and Raman Studies of Al-bearing ceramics", NSF-Division of Materials Research, \$518651.0000. (start: July 1, 2008, end: June 30, 2011).

Marzke, Robert F, Petuskey, William T, Wolf, George H, Yarger, Jeffery Lynn, 08050291, "New directions in high-temperature NMR and Raman Studies of Al-bearing ceramics", DOD-Air Force Office of Scientific Research, \$517723.0000. (start: January 1, 2008, end: December 31, 2011).

Marzke, Robert F., Petranovskii, Vitalii (Centro de Ciencias de la Materia Condensada, UNAM – Ensenada, Mexico), “De-NO_x catalysts based on Cu-mordenite: role of variable silica-alumina ratio”, NineSigma, Inc., 23611 Chagrin Blvd., Suite 320, Cleveland, OH, USA. Amount: approximately \$300,000. (start expected: September 1, 2008, end: August 31, 2011).

PAST

“Laser-heated Gradient NMR Studies of Ceramic Liquids”, National Science Foundation, three years extended to five, 2002 - 2007, \$225,000. PI: R.F. Marzke. Co-PI: G.H. Wolf

“NMR Spectrometer Equipment Updates”, AFOSR F4962-03-1-0346, Air Force Office of Scientific Research, 2003, two years, \$64,000. PI: R. Marzke

“Transition Metal-loaded Zeolite Catalysts for NO_x Removal (de-NO_x), Studied by Optical Absorption and Solid State NMR”, Department of Energy, 2001, two years, \$44,593 awarded during first year. PI: R. Marzke. (in collaboration with V. Petranovskii and N. Bogdanchikova of UNAM-Ensenada, Mexico).

“Novel Approaches to Ultra High-Temperature NMR Studies of Liquids”, Research Corporation, 2000, two years, \$19,000. (PI)

“A Materials Research Science and Engineering Center at Arizona State University”, National Science Foundation, 1996, five years, \$4.18 M. PI: O.F. Sankey. Co-PIs: nineteen investigators, from several ASU departments and from the Carnegie Institution of Washington.

“Acquisition of an NMR Spectrometer Equipped for Studies of Condensed Matter at Extremes of Temperature and Pressure”, National Science Foundation, 1995, two years (extended), \$97,440. PI: R.F. Marzke. Co-PIs: G.H. Wolf, P.F. McMillan, C.A. Angell, R.V. Chamberlin.

(ASU Vice President for Research Cost Share Award for this Grant: \$33,260; from other sources \$39,600)

“Acquisition of an NMR Spectrometer for Studies of Novel Polymer Electrolytes and of Condensed Matter at Extremes of Pressure and Temperature”, National Science Foundation, 1995, two years, \$112,400. PI: R.F. Marzke. Co-PI: C.A. Angell

(ASU Vice President for Research Cost Share Award: \$48,500; from other sources \$40,500)

“Acquisition of an NMR Spectrometer for Studies of Novel Polymer-Salt Electrolytes”, Department of Energy, 1995, two years, \$72,000. PI: R.F. Marzke. Co-PI: C.A. Angell

(ASU Vice President for Research Cost Share Award: \$18,300; from other sources \$3,200)

“Metal-Ammonia Intercalation Chemistry of Transition Metal Disulfides”, National Science Foundation, 1986, three years, \$501,167. PI: W.S. Glaunsinger. Co-PIs: R.F. Marzke, M.J. McKelvey.

“Instrumentation for Magnetic Investigations of Layered and Catalytic Materials”, National Science Foundation, 1983, two years, \$150,800. PI: W.S. Glaunsinger. Co-PIs: M.B. Stearns, R.F. Marzke, T.S. Cale

“A Signal Averager for Pulsed NMR”, National Science Foundation, 1982, one year, \$13,000, PI: R.F. Marzke. Co-PI: W.S. Glaunsinger.

“Metal-Ammonia Intercalation Complexes”, National Science Foundation, 1982, three years (extended), \$517,100. PI: W.S. Glaunsinger. Co-PIs: R. B. Von Dreele, R.F. Marzke

“Structure and Properties of Metal-Ammonia Compounds”, National Science Foundation, 1979, three years, \$324,453. PI: W.S. Glaunsinger. Co-PIs: R.B. Von Dreele, R.F. Marzke

“Magnetic, Chemisorption and Catalytic Properties of Pt Particles”, Petroleum Research Fund, 1977, two years, \$24,000. CoPIs: R.F. Marzke, W.S. Glaunsinger

“Motional and Structural Investigation of Metal-Ammonia Compounds”, National Science Foundation, 1976, three years, \$123,065. PI: W.S. Glaunsinger. Co-PIs: R.B. Von Dreele, R.F. Marzke

TEACHING

Courses taught prior to 1989:

PHY 333, 334 (Electricity & Magnetism Laboratory)
PHY 331, 332 (Electricity & Magnetism Lecture)
PHY 441, 442 (Statistical Physics and Thermodynamics)
PHY 113, 114 (General Physics Laboratory)
PHY 591 (Nuclear Magnetic Resonance)
PHY 105 (Basic Physics, no high school background assumed)

Courses taught since 1989:

PHY 101 (Introduction to Physics)
 PHY 111, 112 (General Physics Lecture)
 PHY 121, 131 (University Physics)
 PHY 531,532 (Electricity & Magnetism)
 PHY 598 (Nuclear Magnetic Resonance)
 PHY 334, 465 (Advanced Physics Laboratory)
 PHY 466 (Advanced Physics Laboratory)
 PHY 592 (Graduate thesis research)

Interdisciplinary course participation (1997-99):

BME 598 (IGERT Anatomy and Biomechanics Course)
 BIS 302, EPE 394 (Adaptations of Form and Function in Biological Systems)
 PHY 598 (Advanced Materials Characterization)

Research Experience for Undergraduates (REU) Programs, 1995, 1997, 1999, 2000

Students: Michael Groenert ('95), Carl Steinke ('97), Witold Lipski ('97), Marius Ghita ('99), Matt Lang ('99), Eric Culbertson ('99), Brooke Fambrough ('00), Nathan Fullmer ('00), Jason Sievers ('01)

Graduate degree committees

M. Abdullah (Physics), R. Sharma (Chemistry), J. Jenkins (Chemistry). S. Boucher (Chemistry), K. Halvorson (Chemistry) , D.P. Raffaele (Physics), J.L. Yarger (Chemistry), A. Korytko (Physics), H. Van Tassell (Physics), J. Aufdenberg(Physics), J. Piwowarczyk (Physics), Emily McDaniel (Physics), Keely Snider (Physics), M. J. Mobley (Chemistry), P. Van Rheenen (Chemistry), K.B. Rawlings (Physics), D. Cornelison (Physics), G. O'Bannon (Chemistry)

Ph.D. Students Graduated – Physics and Astronomy

K.B. Rawlings (1984) – currently Chair of Physical Sciences, Scottsdale Community College; D.P. Raffaele (1993) – currently Chair of Physical Science, Glendale Community College

Ph.D. Students Co-advised – Physics and Astronomy

A. Korytko
 Principal Thesis advisor: M.E. Munk, Chemistry

Ph.D. Students Co-advised - Chemistry

S. Boucher (2005) – currently teaching at Estrella Community College, Phoenix
 Thesis advisor: G.H. Wolf

K.A. Halvorson (1992), J.L. Yarger (co-advisor for NMR – 1996)
 Thesis advisor: G.H. Wolf

M.J. Mobley (1979), G.W. O'Bannon (1988)
 Thesis advisor: W.S. Glaunsinger

M.A. Students Graduated – Physics and Astronomy

J.S. Kim (1993), J. Piwowarczyk (2000) – currently group leader, Freescale Semiconductor, Tempe

SERVICE

University

Strategic Data and Network Planning Task Force, 1986-87
University Computing Network Steering Committee, 1987-89
Selection Committee, Research Assistant Awards, 1987-88

College of Liberal Arts and Sciences

Associate Director, CLAS Nuclear Magnetic Resonance Facility, 2006 - present
Dean's Advisory Committee on Computing, 1983-85
Research Awards Committee, 1986-88
Interdepartmental Computing Network Development Committee, 1983-86

Department

Departmental Computing Advisor, 1986-87

Special Chairman's Award for Departmental Computing Service, 1985

Service on all major department committees, including Budget and Policy (current, 1997-98 & 1986-87), Personnel (1980s and present), Facilities and Services (chair), Committee on Committees (chair past and recent), Graduate Examination Committee (chair, 1988-89 & 1994-95, over 8 years service), Graduate Program Committee and Undergraduate Program Committee

Department Radiation Safety Officer, 1999-present

Science and Engineering Materials Program Service

Member, Examination Committee 1995-1999
Chair, Examination Committee, 1996-97

Honor Society Service

Phi Beta Kappa Membership Committee 2001, 1982-91 (chair for several years)
Phi Beta Kappa Special Award for Service, 1995

(Complete listings of publications and talks follow from here on.)

REFEREED PUBLICATIONS

1. "Gravitation as Geometry I, etc.," R. F. Marzke and J. A. Wheeler, in Gravitation and Relativity ed. Chiu and Hoffman, W. A. Benjamin (1964).

2. "Electron-Nuclear Double Resonance of the Self-Trapped Hole in CaF_2 and BaF_2 ," R. F. Marzke and R. L. Mieher, *Phys. Rev.* 182, 453 (1969).
3. "Mossbauer Isomer Shift in Gold Microcrystals," R. F. Marzke et al., *Phys. Rev.* B2, 1414 (1970).
4. "Proton Magnetic Resonance Study of Metal-Ammonia Compounds," R. F. Marzke and W. S. Glaunsinger, *J. Phys. Chem.* 79, 2976 (1975).
5. "Magnetic Susceptibility of Uniform Microcrystals of Platinum," R. F. Marzke, W. S. Glaunsinger, and M. Bayard, *Solid State Commun.* 18, 1025 (1976).
6. "Size Distribution and ESR of Uniform Microcrystals of Platinum," D. A. Gordon, R. F. Marzke and W. S. Glaunsinger, *J. de Physique (supp.)* 38, C2: 87-91 (1977).
7. "Proton Magnetic Resonance in $\text{Sr}(\text{NH}_3)_6$: Evidence for Ammonia Sublattice Melting," D. A. Gordon, R. F. Marzke and W. S. Glaunsinger, *Chem. Phys. Lett.* 53, 578 (1978).
8. "Structure and Molecular Motion in Alkaline Earth Hexammines," W. S. Glaunsinger, R. F. Marzke, R. B. Von Dreele, et al., *Nature* 271, 414 (1978).
9. "Quantum Size Effects in Small Metallic Particles," R. F. Marzke, *Catal. Rev. Sci. Eng.* 19, 43 (1979).
10. "Spin-Lattice Relaxation in the Alkaline Earth Hexammines," M. J. Mobley, W. S. Glaunsinger and R. F. Marzke, *J. Phys. Chem.* 84, 1129 (1980).
11. "Deuteron Magnetic Resonance in $\text{Ca}(\text{NH}_3)_6$: Evidence for a Planar Ammonia Geometry," M. J. Mobley, W. S. Glaunsinger and R. F. Marzke, *Chem. Phys. Lett.* 81, 159 (1981).
12. "Magnetic Susceptibility, Proton NMR and Muon Spin Rotation Studies of an Unsupported Platinum Catalyst with Adsorbed H and O," R. F. Marzke, W. S. Glaunsinger, K. B. Rawlings, P. Van Rheezen, M. McKelvy, J. H. Brewer, D. Harshman and R. F. Kiefl, *Proceedings of the International Conference on Hydrogen in Metals*, Richmond (Plenum Press, 1983).
13. "NMR Evidence for Two Rotational Hindering Potentials in Solid $\text{Ca}(\text{NH}_3)_6$," K. B. Rawlings, R. F. Marzke and W. S. Glaunsinger, *Chem. Phys. Lett.* 95, 114 (1983).
14. "Nuclear Magnetic Resonance Evidence for Two Ammonia Rotational Hindering Potentials in Solid Metal Hexammines," K. B. Rawlings, R. F. Marzke and W. S. Glaunsinger, *J. Phys. Chem.* 88, 3860 (1984).
15. "Structures and Properties of Metal-Ammonia Compounds: On the Trail of a New Ammonia Geometry," W. S. Glaunsinger, R. B. Von Dreele, R. F. Marzke, R. C. Hanson, et al., *J. Phys. Chem.* 88, 3860 (1984).
16. "Magnetic Characterization of Small Metallic Particles," R.F. Marzke and W.S. Glaunsinger, in *Characterization and Behavior of Materials with Submicron Dimensions*, edited by J.T. Waber (World Scientific, Singapore, 1985), pp. 45-60. (Invited Paper for Symposium of the American Society for Metals).
17. "MSR Measurement of the Reaction Rate of Muonium with a Supported Platinum Catalyst," R. F. Marzke, W. S. Glaunsinger, D. R. Harshman, E. J. Ansaldo, R. Keitel, M. Senba, D. R. Noakes, D. P. Spencer, and J. H. Brewer, *Chem. Phys. Lett.* 120, 6 (1985).
18. "Platinum Microcrystals," P. Van Rheezen, M. McKelvy, R. F. Marzke, and W. S. Glaunsinger, *Inorganic Syntheses* 24, 238 (1986).
19. "Characterization of Pt Microcrystals Using High Resolution Electron Microscopy," N. J. Long, R. F. Marzke, M. McKelvy and W. S. Glaunsinger, *Ultramicroscopy* 20, 15 (1986).

20. "The Relaxation Rate of Muonium as a Function of Temperature and Loading in Silica-supported Platinum Catalysts", R.F. Marzke, D.R. Harshman, E.J. Ansaldi, R. Keitel, M. Senba, D.R. Noakes and J.H. Brewer, *Ultramicroscopy* 20, 161 (1986).
21. "Synthesis, Characterization and Properties of the New Ionic Intercalation Compound $(\text{NH}_4^+)_{0.22}\text{TiS}_2^{0.22-}$ ", M. J. McKelvy, G. W. O'Bannon, E. M. Larson, R. B. Von Dreele, W. S. Glaunsinger, R. F. Marzke, J. Eckert and N. L. Ross, *Mat. Res. Bull.* 21, 1323 (1986).
22. "The Third Metacarpal Styloid in Humans: Origin and Function", M.W. Marzke and R.F. Marzke, *Am. J. Phys. Anthropol.* 73, 415 (1987).
23. "Molecular Motional and Structural Study of Ammoniated Titanium Disulfide by Proton NMR", G.W. O'Bannon, W.S. Glaunsinger and R.F. Marzke, *Solid State Ionics* 26, 15 (1988).
24. "Structure and Dynamics of Ammonia in Li-Ammonia Intercalated TiS_2 : a Proton NMR Study", G.W. O'Bannon, M.J. McKelvy, W.S. Glaunsinger and R.F. Marzke, *Solid State Ionics* 32/33, 167 (1989).
25. "Interaction of Muonium with Oxygen on Silica Powder Surfaces", J.R. Kempton, M. Senba, A.C. Gonzalez, J.J. Pan, A. Templemann and D.G. Fleming, R.F. Marzke, P.W. Percival and S.M. Leung, *Hyperfine Interactions* 65, 811 (1990).
26. "Proton NMR Chemical Shifts in Organic Liquids Measured at High Pressure Using the Diamond Anvil Cell", K.E. Halvorson, D.P. Raffaele, G.H. Wolf and R.F. Marzke, in *Frontiers of High Pressure Research*, ed. by H.D. Hochheimer and R.D. Etters (Plenum, New York, 1991), p. 217.
27. "Conductivity vs. NMR Correlation Times and Decoupled Cation Motion in Polymer-in-Salt Electrolytes", J. Fan, R.F. Marzke and C.A. Angell, *Symposia Mat. Res. Soc.* **293**, 87, 1993.
28. "Investigation of Ethyl Radicals Adsorbed on Silica", M. Schwager, E. Roduner, E. Reid, P.W. Percival, J-C Brodovitch, S. Wlodek and R.F. Marzke. *Hyperfine Interactions* 87, 859 (1994).
29. "A ^1H NMR Study of Glycerol at High Pressure", R.F. Marzke, D.P. Raffaele, K.E. Halvorson and G.H. Wolf, *J. Non-Cryst. Solids* 172-174, 401 (1994).
30. "Conductivity and Nuclear Spin Relaxation in Superionic Glasses, Polymer Electrolytes and the New Hybrid Rubber Electrolyte", C.A. Angell, J. Fan, R.F. Marzke and E. Sanchez, *J. Non-Cryst. Solids* 172-174, 1178 (1994).
31. "Structure and Properties of Fullerides Synthesized in Metal Ammonia Solutions". B.L. Ramakrishna, Z. Iqbal, E.W. Ong, D. Yang, S.N. Murthy, P. Askebjør, F. Korenivski, K.V. Rao, K. Sinha, J. Menendez, J.S. Kim and R.F. Marzke, *Condensed Matter and Materials Communications* 1, 213-233 (1994).
32. "High-Pressure ^1H and ^{13}C Nuclear Magnetic Resonance in a Diamond Anvil Cell", J.L. Yarger, R.A. Nieman, G.H. Wolf and R.F. Marzke, *J. Magn. Reson.* 114, 255 (1995)
33. "Evolutionary Perspective on Human Thumb/Index Finger Biomechanics Relating to Precision Gripping", M.W. Marzke, R.F. Marzke, R.L. Linscheid and K-N An, *Proc. 2nd Triennial Int. Hand and Wrist Biomech. Symp.*, 1995. pp. 68-69.
34. "Temperature-dependent ^{23}Na Knight Shifts and Sharply-peaked Structure in the Electronic Densities of States of Na-Si Clathrates", J. Gryko, P.F. McMillan, R.F. Marzke, A.P. Dodokin, A.A. Demkov and O.F. Sankey, *Phys. Rev. B* 58, 4172-4179 (1998).

35. "Diffusivity and Nuclear Spin Relaxation Measurements at High Pressure in Methanol". R.F. Marzke, D.P. Raffaele, G.H. Wolf and J.L. Yarger, *Mat. Res. Soc. Symp. Proc.* 499, 295-300 (1998).
36. "Silicon Clathrates: Synthesis and Characterization", G.K. Ramachandran, J. Diefenbacher, O.F. Sankey, R. Sharma, R.F. Marzke, J. Gryko and P.F. McMillan, *Mat. Res. Soc. Symp. Proc.* 507, 483-487 (1999).
37. "Chimpanzee Thumb Muscle Cross Sections, Moment Arms and Potential Torques, and Comparison with Humans", M.W. Marzke, R.F. Marzke, R.L. Linscheid, P. Smutz, B. Steinberg, S. Reece and K-N. An, *American Journal of Physical Anthropology* 110, 163-178 (1999).
38. "Synthesis and X-ray Characterization of Silicon Clathrates", G.K. Ramachandran, J.J. Dong, J. Diefenbacher, J. Gryko, R.F. Marzke, O.F. Sankey and P.F. McMillan, *Journal of Solid State Chemistry* 145, 716-730 (1999).
39. "Evolution of the Human Hand: Approaches to Acquiring, Analyzing and Interpreting the Anatomical Evidence", M.W. Marzke and R.F. Marzke, *Journal of Anatomy* 197, 121-140 (2000).
40. "A Low-density Framework Form of Crystalline Silicon with a Wide Optical Bandgap", J. Gryko, P.F. McMillan, R.F. Marzke, G.K. Ramachandran, D. Patton, S.K. Deb and O.F. Sankey, *Phys. Rev. B* 62, 7707-7710 (2000). (Rapid Communication).
41. "High Li^+ Self-Diffusivity and Transport Number in Novel Electrolyte Solutions", M. Videa, W. Xu, B. Geil, R.F. Marzke and C.A. Angell, *Journal of the Electrochemical Society* 148, A1352-A1356 (2001).
42. " ^{133}Cs and ^{23}Na NMR Studies of $\text{Cs}_8\text{Na}_x\text{Ge}_{136}$ Clathrates", R.F. Marzke, G.S. Nolas and J. Gryko, *Mat. Res. Soc. Symp. Proc.* 691, 439-444 (2002).
43. "Characterization of H and Cu mordenites with varying $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratios, by optical spectroscopy, MAS NMR of ^{29}Si , ^{27}Al and ^1H , temperature programmed desorption and catalytic activity for nitrogen oxide reduction", V. Petranovskii, R.F. Marzke, G. Diaz, A. Gomez, N. Bogdanchikova, S. Fuentes, N. Katada, A. Pestryakov and V. Gurin, in *Studies in Surfaces and Catalysis* 142, (Eds. R. Aiello, G. Giordano and F. Testa), 815-822 (2002).
44. "Structure of Orthoborate Anions and Physical Properties of their Lithium Salt Non-Aqueous Solutions", W. Xu, A.J. Shusterman, M. Videa, V. Velikov, R. Marzke and C.A. Angell, *J. Electrochem. Soc.* 150, E74-E80 (2003).
45. LiMOB, an unsymmetrical nonaromatic orthoborate salt for nonaqueous solution electrochemical applications, W. Xu, A.J. Shusterman, R. Marzke and C. Austen Angell, *J. Electrochem. Soc.* 151, A632-A638 (2004).
46. Al motion rates in levitated, molten Al_2O_3 samples, measured by pulsed gradient spin echo ^{27}Al NMR", R.F. Marzke, J. Piwowarczyk, P.F. McMillan, G.H. Wolf. *J. Europ. Ceram. Soc.* 25, 1325-1332 (2005).
47. Melt and glass structure in the $\text{Al}_2\text{O}_3\text{-CaO-LaPO}_4$ system studied by ^{27}Al and ^{31}P NMR, and by Raman scattering", S. Boucher, J. Piwowarczyk, R.F. Marzke, B. Takulapalli, G.H. Wolf, P.F. McMillan, W.T. Petuskey. *J. Europ. Ceram. Soc.* 25, 1333-1340 (2005).
48. Electron structure and temperature-dependent shifts in ^{133}Cs NMR spectra of $\text{Cs}_8\text{Ge}_{136}$ clathrate, J. Gryko, R.F. Marzke, G.A. Lamberton Jr., T.M. Tritt., M. Beekman and G.S. Nolas, *Phys. Rev. B* 71, 115208/1-115208/7 (2005).
49. Aerosol synthesized mesoporous silica containing high loading of alumina and zirconia, M. T. Bore, R. F. Marzke, T.L. Ward, A.K. Datye, *J. Mater. Chem.* 15, 5022-5028 (2005).

Accepted, currently in revision:

50. "Self-diffusion of Methanol Measured to 4 GPa by NMR in a Diamond Anvil Cell", J.L. Yarger, D.P. Raffaele, G.H. Wolf and R.F. Marzke, Chemical Physics Letters.
51. "Comparative Three-dimensional Topography of the Trapeziometacarpal Joint in Chimpanzees and in Five Human Populations", M.W. Marzke, R.F. Marzke and R.L. Linscheid, American Journal of Physical Anthropology.
52. "Lanthanum Phosphate Calcium Aluminate Glasses: Synthesis and Characterization by ^{27}Al and ^{31}P NMR and by Raman Spectroscopy", R.F. Marzke, G.H. Wolf, S. Boucher, J. Piwowarczyk, and W.T. Petuskey, J. Europ. Ceram. Soc, June 2008.

INVITED PAPERS, SEMINARS AND COLLOQUIA

INVITED PAPERS

1. "Synthesis and Magnetic Properties of Small Platinum Particles", P. Van Rheenen, M.J. McKelvey, R.F. Marzke and W.S. Glaunsinger, California Catalysis Society Fall Meeting, September, 1981.
2. "Structure and Properties of Metal-Ammonia Compounds: On the Trail of a New Ammonia Geometry", W.S. Glaunsinger, R.B. Von Dreele, R.F. Marzke, R.C. Hanson, P. Chieux, P. Damay and R. Catterall, Colloque Weyl VI, Asilomar, CA, June 26 – July 1, 1983.
3. "Magnetic Characterization of Small Metallic Particles", R.F. Marzke and W.S. Glaunsinger, American Society for Metals, Symposium on Characterization and Behavior of Small Metallic Particles, Philadelphia, PA, October, 1983. (presented by R.F. Marzke)
4. "Muons and Muonium Chemistry at TRIUMF", R.F. Marzke, evening address at the Fall meeting of the California Catalysis Society, Los Angeles, CA, October 19, 1989.
5. "NMR at High Pressures in the Diamond Anvil Cell", R.F. Marzke, D.P. Raffaele, K.A. Halvorson and G.H. Wolf, New Mexico Regional NMR meeting in Tucson, March 14, 1992 (presented by R.F. Marzke).
6. "Conductivity vs. NMR Correlation Times and Decoupled Cation Motion", J. Fan, R.F. Marzke and C.A. Angell, Symposium of the Materials Research Society, Boston, November 30-December 4, 1992 (presented by C.A. Angell).
7. "NMR and Conductivity/Dielectric Characteristic Times in Fast Ion Conducting Salt/Polymer Systems, and a Trapping Model for Ionic Mobility", J. Fan, R.F. Marzke and C.A. Angell, 2nd International Conference on Relaxation in Complex Systems, Alicante, Spain, July 1993 (presented by C.A. Angell).
8. "Evolutionary Perspective on Human Thumb/Index Finger Biomechanics Relating to Precision Gripping", M.W. Marzke, R.F. Marzke, R.L. Linscheid and K-N An, Proc. 2nd Triennial Int. Hand and Wrist Biomech. Symposium, 1995. pp. 68-69 (presented by M.W. Marzke).
9. "Diffusion and Relaxation in Liquids to 4 GPa by Diamond Anvil Cell NMR: Modifying the Stokes-Einstein Relation", R.F. Marzke, Gordon Conference on the Chemistry and Physics of Liquids, New Hampshire, August 3-8, 1997.
10. "NMR Studies of Liquids at High Pressure in the Diamond Anvil Cell", R.F. Marzke, Aspen Workshop on Materials at High Pressures, Aspen, CO, June 18, 1997.

11. "Contrasts between Humans and Chimpanzees in Thumb Muscle Cross Sections, Moment Arms and Potential Torques", M.W. Marzke, R.F. Marzke, R.L. Linscheid and K-N An, given by M.W. Marzke at the Meeting of the American Society for the Surgery of the Hand, Boston, MA, September, 1999.
12. "Nitrogen Oxide Removal Catalysts Characterized by NMR, TPD and Optical Diffuse Reflectance Spectroscopy", VII Symposium in the Physics of Materials, UNAM – Ensenada, Baja California, Mexico, January 24, 2002. Co authors: V. Petranovskii and N. Bogdanchikova, UNAM-Ensenada.
13. "NMR its applications to the study of catalysis" (invited), given at the Centro de Ciencias de la Materia Condensada at UNAM-Ensenada, Ensenada, B.C. Mexico, January 2002.. This was telecast to universities over the entire country, via an inter-university network.
14. "Aluminum Diffusivity and Bonding in Liquid Ceramics, Measured by Ultra High-Temperature ^{27}Al NMR." R.F. Marzke. Co-authors: J. Piwowarczyk, G.H. Wolf, W.T. Petuskey and B.Takulapalli, P.F. McMillan. Joint AFOSR Contractor's Meeting, Bar Harbor, Maine, August 2002.
15. "Water Desorption from H and Cu Mordenites Monitored by ^1H and ^{27}Al NMR", R.F. Marzke, A. Efimov and V. Petranovskii, VIII Simposio en Fisica de Materiales, UNAM-Ensenada, Baja California, Mexico, January 22, 2003.
16. "Laser Heated Gradient NMR Studies of Ceramic Liquids", R. F. Marzke, J. Piwowarczyk, G.H. Wolf, S. Boucher and W.T. Petuskey, 2004 Contractors Meeting for the Air Force Office of Scientific Research, Wintergreen, VA, August 17, 2004.
17. "Ultra High-Temperature ^{27}Al NMR and Raman Studies of Bonding and Internal Motions in Molten and Solid Ceramic Samples" (invited), R.F. Marzke, G.H. Wolf, J. Piwowarczyk and S. Boucher, 29th International Conference on Advanced Ceramics and Composites, American Ceramic Society, Cocoa Beach, FL, January 23-28, 2005.
18. "Novel Melts and Glasses in the Alumina-Calcia-Monazite System: Structural Determination and Al Motion Rates in Molten Samples", R.F. Marzke, S. Boucher, J. Piwowarczyk, W.T. Petuskey and G.H. Wolf 16th American Conference on Crystal Growth and Epitaxy, Big Sky, Montana, July 10-14, 2005.
19. "From Melt to Glass in the Alumina-Calcia-Monazite System: Monitoring Structure via NMR from 300 to 2800 K, and by Raman Scattering", R.F. Marzke, S. Boucher, J. Piwowarczyk, W.T. Petuskey and G.H. Wolf 6th Pacific Rim Conference on Ceramic and Glass Technology, Maui, Hawaii, September 11-16, 2005.
20. "Lanthanum Phosphate Calcium Aluminate Glasses: Synthesis and Characterization by ^{27}Al and ^{31}P NMR and by Raman Spectroscopy", R.F. Marzke, G.H. Wolf, S. Boucher, J. Piwowarczyk, and W.T. Petuskey, 2nd Directionally Solidified Eutectic Ceramics Workshop, Kyoto, Japan, December 4-6, 2006.

SEMINARS (see also recent selected presentations and seminars, above)

1. "Small Metallic Particles", Chemical Engineering Department, Stanford University, Spring 1977.
2. "Muon Spin Rotation Studies of Catalysts", Chemical Engineering Department, Stanford University, October 1984.
3. "NMR: Theory and Technique", a two-lectures in course on Solid State Chemistry in the Center for Solid State Science, ASU, 1985.

4. “Physics of Small Metallic Particles”, two lectures in a course on Electron Diffraction and Microscopy, ASU, 1986.
5. NMR Imaging Studies of the Hand and Knee Joint”, at Scottsdale Memorial Hospital, 1986 (with M.W. Marzke, Department of Anthropology, ASU).
6. “Biomechanics of a Grasping Finger in Tool Use”, Mayo Clinic, Rochester, MN, June 1996.
7. “NMR: the Basic Physics”, Lecture and Demonstration for O.F. Sankey’s PHY courses, ASU, 1997–present.
8. “MuSR Studies of Muonium Relaxation by Dioxygen and Ethylene Adsorbed on Ultra-Pure Silica Powder”, Group Seminar, Physics and Astronomy Department, ASU, November, 1997.
9. “Electron Spin Resonance and Its Applications in Physics and Chemistry”, Motorola, February, 1998.
10. “Modern NMR and Its Applications”, six seminar talks given to Research Experience for Undergraduates Programs in Physics and in Materials Science, ASU, 1995, 1997, 1999, 2000.
11. “Evolutionary Perspective on Human Hand Muscle Mechanics”, M.W. Marzke and R.F. Marzke, IGERT Seminar Series at ASU, March 29, 20001.
12. “Evolution of the Human Hand and Bipedality/Modern NMR in Solid State Physics and Chemistry”, M.W. Marzke and R.F. Marzke, in dual-topic talk for IGERT in Musculoskeletal and Neural Adaptations Seminar Series, Arizona State University, August 23, 2001.
13. “Sites of H and Cu atoms in Nitrogen Oxide Removal Catalysts”, R. F. Marzke, V. Petranovskii and N. Bogdanchikova, Solid State Seminar, Physics and Astronomy Department, ASU, December 3, 2001.
14. “NMR: how it works and why it’s so useful”, R. Marzke, Physics and Astronomy Department Research Seminar, April 2004.
15. “NMR: a Versatile Tool for Studying Structure and Motion at the Nanoscale”, R.F. Marzke, J. Piwowarczyk, G.H. Wolf, S. Boucher and W.T. Petuskey, Department Research Seminar, April 22, 2005.
16. “Novel Aluminate and Phosphate Glasses and their Melts, Studied by Raman Scattering and NMR: Is a Glass the Same as a Frozen Melt?”, R.F. Marzke, S.Boucher, J. Piwowarczyk, W.T. Petuskey and G.H. Wolf, Department Soft Matter Seminar, September 7, 2005.
17. “Chemical Structure of Molten and Solid Alumina-based Ceramic Materials: an NMR and Raman Scattering Study”, R.F. Marzke, S.Boucher, J. Piwowarczyk, W.T. Petuskey and G.H. Wolf, ASU-Industry Seminar, November 29, 2005.
18. “NMR: basics and some current applications, with an introduction to laboratories at ASU”, R.F. Marzke, Physics Department Graduate Research Seminar, April 2006.

COLLOQUIA (various)

1. “Platinum Microcrystals and Metal-Ammonia Compounds Studied by Magnetic Susceptibility and NMR”, Physics Department Colloquium, ASU, Fall, 1975.
2. “Physical Properties of Small Metallic Particles”, Physics Department Colloquium, UCLA, Spring 1977.

3. “Muon Spin Rotation Studies of Adsorbates on Surfaces”, Physics and Astronomy Department Colloquium, ASU, Fall, 1990.
4. “NMR Studies of Motions in Condensed Matter at High Pressures, and in Novel Polymer Electrolytes”, Physics Departmental Colloquium, Colorado State University, November 1995.
5. “Electronic Structure of Novel Materials and Effects of High Pressure upon Liquids: Two Recent NMR Studies”, Physics and Astronomy Department Colloquium, September 25, 1997.
6. “Modern NMR – a Versatile Technique for Studying Condensed Matter”, Physics Departmental Colloquium, September 27, 2001
7. “Where is the Copper Ion in Copper Mordenite?”, R.F. Marzke, V. Petranovskii and N.Bogdanchikova, colloquium at the Center for Condensed Matter Science, UNAM, Ensenada, B.C., Mexico, November 5, 2001.

CONTRIBUTED PAPERS, TECHNICAL REPORTS

January, 2008 – present

Reports

1. DOE 2008 report - Protic Salt Polymer Membranes: High-Temperature Water-Free Proton Conductors, DOE Quarterly Progress report on grant DE-FG36-06G016029, D. Gervasio, C.A. Angell, R.F. Marzke J.L. Yarger, W. Youngs, January 2008.
2. DOE 2008 report - FUNDAMENTAL STUDIES OF ABOVE-GROUND AND GEOLOGIC MINERAL SEQUESTRATION REACTIONS, Michael J. McKelvy,* Andrew V.G. Chizmeshya, George Wolf, Robert Marzke, and Hamdallah Béarat. NETL/ANL Contract Number: 4F-01641. Dates 10/01/2007 – present.

Presentations

1. DOE Hydrogen Program Review presentation: “Protic Salt Polymer Membranes: High-Temperature Water-Free Proton Conductors,” D. Gervasio (presenter), C.A. Angell, R.F. Marzke J.L. Yarger, W. Youngs, June, 2008.
2. “Investigating Geological Sequestration Reaction Processes under *In Situ* Process Conditions” Andrew V.G. Chizmeshya, George Wolf, Michael J. McKelvy, Naoki Ito, Hamdallah Béarat, Brandon Doss and Robert Marzke, *Proceedings of the 32nd International Technical Conference on Coal Utilization & Fuel Systems*, May(2008).

January 1, 2007 – December 31, 2007

Reports

DOE 2007 report - FUNDAMENTAL STUDIES OF ABOVE-GROUND AND GEOLOGIC MINERAL SEQUESTRATION REACTIONS, Michael J. McKelvy,* Andrew V.G. Chizmeshya, George Wolf, Robert Marzke, and Hamdallah Béarat. NETL/ANL Contract Number: 4F-01641. Dates 10/01/2006 –09/30/2007

DOE 2007 report - Protic Salt Polymer Membranes: High-Temperature Water-Free Proton Conductors, DOE Quarterly Progress report on grant DE-FG36-06G016029, D. Gervasio, C.A. Angell, R.F. Marzke J.L. Yarger, W. Youngs, October 2007.

Presentations

1. "Locations of metal ions in the new glasses in the alumina-calcia-monazite (LaPO_4) system", R. Marzke, G.H. Wolf, S. Boucher, J. Piwowarczyk, W.T. Petuskey, March Meeting of the American Physical Society, Denver, CO, March 5-9, 2007.
2. DOE Hydrogen Program Review presentation: "Protic Salt Polymer Membranes: High-Temperature Water-Free Proton Conductors," D. Gervasio (presenter), C.A. Angell, R.F. Marzke J.L. Yarger, W. Youngs, April, 2007.
3. "Investigating Geological Sequestration Reaction Processes under *In Situ* Process Conditions" Andrew V.G. Chizmeshya, George Wolf, Michael J. McKelvy, Naoki Ito, Hamdallah Béarat, Brandon Doss and Robert Marzke, *Proceedings of the 32st International Technical Conference on Coal Utilization & Fuel Systems*, **32**, 431 (2007).
4. "Synthesis and Structure of New Glasses in the Calcium Aluminate – La Monazite System, Studied by NMR of ^{27}Al and ^{31}P and by Raman Scattering", R.F. Marzke, S. Boucher, G.H. Wolf, J. Piwowarczyk and W.T. Petuskey, Arizona State University, Tempe, AZ, USA, Gordon Conference on Ceramics, Proctor Academy, Andover, NH, August 5-10.

January 1, 2006 – December 31, 2006

Presentations:

1. "New glasses in the alumina-calcia-monazite (LaPO_4) system: structural evidence from NMR, Raman scattering and thermal properties", R.F. Marzke, S. Boucher, J. Piwowarczyk and G.H. Wolf, March American Physical Society Meeting, Baltimore, March 13-17, 2006.
2. "Development of an in situ "window" into below-ground geological sequestration reaction processes," Andrew V.G. Chizmeshya, Michael J. McKelvy, George H. Wolf, Hamdallah Béarat, Robert Marzke, Emmanuel Soignard, and Jason Diefenbacher, presented at the Fifth Annual Conference on Carbon Capture and Sequestration, Arlington, Virginia, May 8-11, 2006. The abstract for this presentation was refereed and competitively selected for presentation.
3. "Application of NMR to the direct measurement of diffusivities and activities of CO_2 and other dissolved species under geological and mineral sequestration conditions," Emmanuel Soignard, Robert Marzke, Jeremy Piwowarczyk, Jason Diefenbacher, and Michael McKelvy, presented at the 31st International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, Florida, May 21-25, 2006.
4. "Laboratory Investigation of Fluid/Solid Sequestration Reaction Processes under In Situ Sequestration Process Conditions," Michael J. McKelvy, Andrew V.G. Chizmeshya, Emmanuel Soignard, Robert Marzke, George Wolf, Hamdallah Béarat, and Brandon Doss, presented at the 31st International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, Florida, May 21-25, 2006.
5. "Synthesis and structural analysis of glasses and glass-ceramics in the $\text{CaO-Al}_2\text{O}_3\text{-LaPO}_4$ system", R.F. Marzke, S. Boucher, J. Piwowarczyk, G.H. Wolf and W.T. Petuskey, 5th International Symposium on Crystallization in Glasses and Liquids, Jackson Hole, Wyoming, September 25-28, 2006.

Conference proceedings articles from presentations 3 and 4:

"Application of NMR to the direct measurement of diffusivities and activities of CO_2 and other dissolved species under geological and mineral sequestration conditions," Emmanuel Soignard, Robert Marzke, Jeremy Piwowarczyk, Jason Diefenbacher, and Michael McKelvy, *Proceedings 31st International Technical Conference on Coal Utilization & Fuel Systems (2006)* 1 p on CD.

"Laboratory Investigation of Fluid/Solid Sequestration Reaction Processes under In Situ Sequestration Process

Conditions,” Michael J. McKelvy, Andrew V.G. Chizmeshya, Emmanuel Soignard, Robert Marzke, George Wolf, Hamdallah Béarat, and Brandon Doss, Proceedings 31st International Technical Conference on Coal Utilization & Fuel Systems (2006) 17 pp on CD.

January 1, 2005 – December 31, 2005

1. “P-O and Al-O Bonding in Melts of the Alumina-Calcia-Monazite System, Studied by Raman Scattering and Ultra High-Temperature NMR”, S. Boucher, J. Piwowarczyk, R.F. Marzke and G.H. Wolf, American Physical Society March Meeting, Los Angeles, CA 03/2005
2. “Structure and Motion in Ceramic Melts Containing Al and P, Studied by Raman Spectroscopy and Ultra High-Temperature NMR”, R.F. Marzke, S. Boucher, J. Piwowarczyk, W.T. Petuskey and G.H. Wolf, American Ceramic Society Meeting, Baltimore, MD 05/2005

January 1, 2004 – December 31, 2004

1. “Pulsed Gradient NMR Measurement of Convective Incoherent Motion Rates, in Levitated, Molten Samples of Alumina”, R.F. Marzke, J. Piwowarczyk, P.F. McMillan and G.H. Wolf, March Meeting of the American Physical Society, Montreal, Canada, March 2004.
2. “Al Bonding in Melts of the Al₂O₃-CaO-LaPO₄ System, Studied by Ultra High-temperature NMR.” R.F. Marzke, J. Piwowarczyk, S.Boucher, B. Takulapalli, G.H. Wolf, P.F. McMillan and W.T. Petuskey. March Meeting of the American Physical Society, Montreal, Canada, March 2004.
3. “Ultra High-Temperature NMR Studies of Bonding and Incoherent Convective Motion Rates in Laser-Heated Molten, Levitated Ceramic Samples.” R.F. Marzke, J. Piwowarczyk, , G.H. Wolf, S.Boucher, and W.T. Petuskey, 106th Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 20, 2004.

January 1, 2003 – December 31, 2003

1. “Aluminum Diffusivity and Chemical Shift Measured by Ultra High-Temperature NMR in Liquid Ceramics”, R.F. Marzke, J. Piwowarczyk, G.H. Wolf, W.T. Petuskey and B. Takulapalli, March Meeting of the American Physical Society, Austin, TX, March 3-7 2003. Bull. Am. Phys. Soc. 48, Abstract X27 12.
2. “Influence of Si/Al Ratio on Catalytic Properties and NMR Spectra of Mordenite DeNO_x Catalysts”, R.F. Marzke, V. Petranovskii, N. Bogdanchikova and S. Fuentes, March Meeting of the American Physical Society, Austin, TX, March 3-7 2003. Bull. Am. Phys. Soc. 48, Abstract H11 10.
3. “NMR, DSC and Electrical Conductivity Studies of Germanium Clathrate Compounds”, J.Gryko, G.S. Nolas and R.F. Marzke, March Meeting of the American Physical Society, Austin, TX, March 3-7 2003. Bull. Am. Phys. Soc. 48, Abstract G25 6.
4. “A structural study of liquid and solid phases of the alumina-CaO-monazite system”, R.F. Marzke, J. Piwowarczyk, S. Boucher, G.H. Wolf and W.T. Petuskey, AFOSR-sponsored Directionally Solidified Eutectic Ceramics Workshop, Paris, France, May 5-7, 2003.
5. “Diffusivity of Al in molten Al₂O₃, measured by pulsed gradient spin echo NMR of ²⁷Al”, R.F. Marzke, J. Piwowarczyk and G.H. Wolf, AFOSR-sponsored Directionally Solidified Eutectic Ceramics Workshop, Paris, France, May 5-7, 2003.
6. “Progress in NMR studies of liquid ceramics”, Four Corners Sectional Meeting of the American Physical Society, Arizona State University, Tempe, AZ, October, 2003.

July 1, 2002 – December 31, 2002

1. “Trapeziometacarpal Joint Curvature Variation Among Humans, Chimpanzees and Fossil Ancestral Species”, M.W. Marzke, R.F. Marzke, R.L. Linscheid and S.P. Reece, Annual Meeting of the American Society for Surgery of the Hand, Phoenix, AZ, October 2002.
2. “Al NMR study of molten aluminum oxide compounds and mixtures, measured at ultra high temperatures”, J. Piwowarczyk, R.F. Marzke, G.H. Wolf, W.T. Petuskey and B. Takulapalli, Four Corners Regional Meeting of the American Physical Society, Salt Lake City, UT, Oct 4-5, 2002.
3. “Characterization of H and Cu mordenites with varying SiO₂/Al₂O₃ ratios, by optical spectroscopy, MAS NMR of ²⁹Si, ²⁷Al and ¹H, temperature programmed desorption and catalytic activity for nitrogen oxide reduction”, V. Petranovskii, R.F. Marzke, G. Diaz, A. Gomez, N. Bogdanchikova, S. Fuentes, N. Katada, A. Pestryakov and V. Gurin, 2nd FEZA Conference, Taormina, Italy, September 2002 .

July 1, 2001 – June 30, 2002

1. “Large Knight shifts in partially filled type II germanium clathrates”, J. Gryko, G.S. Nolas and R.F. Marzke, March Meeting of the American Physical Society, Indianapolis, IN, March 18-22, 2002.
2. “Characterization of Cu Mordenite deNOx Catalysts at Variable Si/Al Ratios, by NMR, TPD and Optical Spectroscopy”, R.F. Marzke, V.P. Petranovskii and N. Bogdanchikova, March Meeting of the American Physical Society, Indianapolis, IN, March 18-22, 2002.
3. “Characterization of Cu-Mordenites with varying silica-alumina ratios by ²⁹Si, ²⁷Al, ⁶³Cu and ¹H MAS NMR, optical absorption and catalytic activity for nitrogen oxide reduction”, V. Petranovskii, R.F. Marzke, G. Diaz, A. Gomez, A. Pestryakov, N. Katada, M.A. Hernandez, J.V. Tamariz Flores, N. Bogdanchikova, V. Gurin, CHEM-02 Conference, Cairo, Egypt, March 2002.
4. “Characterization of H and Cu Mordenites at Varying Si/Al Ratio by NMR, Optical Spectroscopy, TPD and deNOx Conversion Rate”, R.F. Marzke, V. Petranovskii, N. Bogdanchikova, N. Katada, G. Diaz, A. Gomez, S. Fuentes and V. Gurin, Symposium of the Western States Catalysis Club, Albuquerque, NM, February 22, 2002.
5. “¹³³Cs and ²³Na NMR Studies of Cs₈Na_xGe₁₃₆ Clathrates”, R.F. Marzke, G.S. Nolas and J. Gryko, Abstract G14.1, Materials Research Society Fall Meeting, Boston, MA, Dec. 6 –10 2001.

July 1, 2000 – June 30, 2001

1. “A Laser-heated Levitation NMR Study of Molten Refractory Ceramic Oxides”, R.F. Marzke, J. Piwowarczyk, 2001 Gordon Conference on Magnetic Resonance, Bristol, R.I., June 17-22, 2001.
2. “A ²⁷Al NMR Study of Molten Aluminum-bearing Oxides”, R.F. Marzke, J. Piwowarczyk, G.H. Wolf, P.F. McMillan, M. Wilding and R. Weber, March Meeting of the American Physical Society, Seattle, March 12-16, 2001
3. “²³Na NMR of Na_xSi₁₃₆ Compounds, at Varying Na Content”, R.F. Marzke, J. Gryko, P.F. McMillan, March Meeting of the American Physical Society, Seattle, March 12-16, 2001.

4. "Lithium Self-Diffusivity and Transport Number in Solutions of New Lithium Orthoborate Salts", M. Videa, W. Xu, B. Geil, R. Marzke and C.A. Angell, 198th Meeting of the Electrochemical Society, Phoenix, AZ, October 22-27, 2000.
5. "NMR of ²⁷Al in Molten Aluminum-Bearing Ceramics", R.F. Marzke, J. Piwowarczyk, G.H. Wolf and P.F. McMillan, Four Corners Sectional Meeting of the American Physical Society, Fort Collins, Co, September 28-30, 2000.

July 1, 1999 – June 30, 2000

1. "Measurement of Cationic and Anionic Diffusivities and of Conductivity, in a Novel Liquid Electrolyte", B. Geil, M. Videa, R.F. Marzke and C.A. Angell, APS March Meeting, Minneapolis, MN, March 20-24, 2000.
2. "NMR of ²⁹Si and ²³Na in Na-Si Clathrate Compounds with Low Na Content", J. Gryko, R.F. Marzke, G.K. Ramachandran, J. Diefenbacher, O.F. Sankey and P.F. McMillan, APS March Meeting, Minneapolis, MN, March 20-24, 2000.
3. "NMR of Si, Al and H in Copper Mordenites at Varying Silica-Alumina Ratios", R.F. Marzke, V. Petranovskii and N. Bogdanchikova, Fifth Symposium of the Physics of Materials, UNAM, Ensenada, Mexico, January 24-28, 2000.
4. "Contrasts between Humans and Chimpanzees in Thumb Muscle Cross Sections, Moment Arms and Potential Torques". M.W. Marzke, R.F. Marzke, R. L. Linscheid and K-N An, Annual Meeting of the American Society for Surgery of the Hand, Boston, MA, September 8-11, 1999.

July 1, 1998 – June 30, 1999

1. "²³Na and ²⁹Si NMR Studies of Sodium Silicon Clathrate Compounds". R.F. Marzke, G. Ramachandran, J. Gryko, J. Diefenbacher, O.F. Sankey and P.F. McMillan, Poster at Gordon Conference on NMR, New Hampshire, June 27-July 2, 1999.
2. "Na-Si Clathrate Compounds Na_xSi₄₆ (x ~ 8), Na_ySi₁₃₆ (y < 12) Studied by X-ray Diffraction and by NMR of ²³Na and ²⁹Si". G. Ramachandran, J. Gryko, R.F. Marzke, J. Diefenbacher, O.F. Sankey and P.F. McMillan, APS March Meeting, Atlanta, GA, March 20-24, 1999.
3. "NMR Study of Erionite and Ag-Erionite Catalysts", R. F. Marzke, V. Petranovskii, and N. Bogdanchikova, IV Simposio en Fisica de Materiales, Universidad Nacional Autonoma de Mexico, Ensenada, Mexico, November 1998.

July 1, 1997 – June 30, 1998

1. "Silicon Clathrates: Synthesis and Characterization Studies". G.K. Ramachandran, J. Gryko, P.F. McMillan, O.F. Sankey, R.F. Marzke, M. O'Keeffe and R. Sharma. Spring Meeting of the Materials Research Society, San Francisco, CA, April 1998.
2. "Diffusivity, Nuclear Spin Relaxation and Viscosity at High Pressure in MeOH: Inferring the Pressure Dependence of the Infinite Frequency Shear Modulus". R.F. Marzke, J.L. Yarger, D.P. Raffaele and G.H. Wolf, American Physical Society March Meeting, Los Angeles, CA, March 1998.
3. "Diffusivity and Nuclear Spin Relaxation at High Pressure in MeOH and 4:1 MeOH-EtOH Mixtures". R.F. Marzke, G.H. Wolf, R. Nieman, J.L. Yarger and D.P. Raffaele, Fall Meeting of the Materials Research Society, Boston, MA, December 1997.

4. "Evolution of the Human Thumb". M.W. Marzke, R.F. Marzke, R.L. Linscheid, S. Reece, B. Steinberg and K-N An, 1997 Cold Spring Harbor Meeting on Human Evolution (organized by L. Cavalli-Sforza and J.D. Watson), Cold Spring Harbor, N.Y., October 1997 (given by M.W. Marzke).
5. "MuSR Studies of Muonium Relaxation by Dioxygen and Ethylene Adsorbed on Silica". R.F. Marzke, D.G. Fleming, P.W. Percival and M. Senba. California Catalysis Society Meeting, Pasadena, CA, September 1997.

July 1, 1996 - June 30, 1997

1. "NMR Studies of Liquids at High Pressure in the Diamond Anvil Cell". R.F. Marzke, G.H. Wolf, Lecture given at Aspen Workshop on Materials at High Pressures, Aspen, CO, June 16-23, 1997.
2. "MuSR Studies of Muonium Relaxation by Dioxygen and Ethylene Adsorbed on Ultra-Pure Silica Powder". R.F. Marzke, D.G. Fleming, P.W. Percival and M. Senba. American Chemical Society Meeting Symposium, San Francisco, CA, April 1997.
3. "Thumb Kinematics in Chimpanzees and Humans", M.W. Marzke, R.L. Linscheid, R.F. Marzke, S. Reece, B. Steinberg, P. Smutz and K-N An, Annual Meeting of the American Association of Physical Anthropologists, St. Louis, MO, April 1997 (given by M.W. Marzke).
4. "Temperature-dependent ^{23}Na Knight Shifts in Na-Si Silicon Clathrates". R.F. Marzke, J. Gryko, P.F. McMillan, A.A. Demkov, O.F. Sankey and A.P. Dodokin, American Physical Society March Meeting, Kansas City, MO, March 1997.
5. "Expanded phases of semiconductors: electronic structure theory analysis", J.Gryko, A.A. Demkov, O.F. Sankey, R.F. Marzke and W. Windl, American Physical Society March Meeting, Kansas City, MO, March 1997.

July 1, 1995 - June 30, 1996

1. "High-Pressure Nuclear Spin Relaxation and Diffusion in Pure Methanol: Comparison with 4:1 Methanol-Ethanol", R.F. Marzke, J.L. Yarger, D.P. Raffaele and G.H. Wolf, Gordon Conference on High Pressure, Meriden, N.H., June 25 -30, 1996.
2. "Diffusion and Activation Volume Measured to 4 GPa in Pure Methanol", D.P.Raffaele, R.F. Marzke, J.L. Yarger and G.H. Wolf. APS March Meeting, St. Louis, MO, Mar 18-22, 1996.
3. "Diamond Anvil Cell NMR Technique for Diffusion Measurements at High Pressure", J.L. Yarger, D.P. Raffaele, R.A. Nieman, G.H. Wolf and R.F. Marzke. Experimental NMR Conference, Asilomar, CA, March 18-22, 1996.

July 1, 1994 - June 30, 1995

1. "Correlation Times in Methanol at High Pressure, from Diffusivity and Nuclear Relaxation", D.P. Raffaele, R.F. Marzke and G.H. Wolf. American Physical Society March Meeting, San Jose, March 1995.

July 1, 1993 - June 30, 1994

1. "Spin-relaxation of Toluene and Methylcyclohexane under High Pressure in the Diamond Anvil Cell", J. Yarger, R. Marzke and G. Wolf, Experimental NMR Conference, Asilomar, CA, April 1994.

2. "Thumb/finger Morphology Relating to Precision Gripping in the Chimpanzee", M.W. Marzke, R.F. Marzke, R.L. Linscheid (Mayo Clinic) and K-N An (Mayo Clinic), Annual Meeting of the American Association of Physical Anthropologists, Denver, March 1994.
3. "Correlation Times in Glycerol at High Pressure", R.F. Marzke, D.P. Raffaele, K.E. Halvorson and G.H. Wolf, March Meeting of the American Physical Society, Pittsburgh, March 1994.
4. "¹H NMR Studies of Molecular Liquids at High Pressures", R.F. Marzke, D.P. Raffaele, K.E. Halvorson and G.H. Wolf, 2nd International Conference on Relaxation in Complex Systems, Alicante, Spain, June-July 1993.

July 1, 1992 - June 30, 1993

1. "Relaxation in Molecular Liquids at High Pressures, Probed by ¹H NMR", D.P. Raffaele, R.F. Marzke, K.E. Halvorson and G.H. Wolf, American Physical Society March Meeting, Seattle, March 22-26, 1993.
2. "High Pressure ¹H NMR of Organic Liquids in a Diamond Anvil Cell", D.P. Raffaele, K.E. Halvorson, R.F. Marzke, G.H. Wolf and M. Scheinfein, Experimental NMR Conference, St. Louis, March 15-19, 1993.
3. "Proton NMR in Metal Ammonia-intercalated C₆₀", J.S. Kim, B.L. Ramakrishna and R.F. Marzke, Arizona Fullerene Consortium Symposium, April 9, 1993.
4. "Properties of Fullerene Compounds Synthesized by New Approaches", B.L. Ramakrishna, Z. Iqbal, Fullerene Symposium of the Electrochemical Society, St. Louis, May 1992 and Arizona Fullerene Consortium Symposium, Tucson, November 1992.
5. "NMR Studies of Fullerene Intercalation Compounds", J.S. Kim, R.F. Marzke and B.L. Ramakrishna, Spring Meeting of the Arizona Fullerenes topical group at Arizona State University, Tempe, May 1993.

(The following two are refereed abstracts, a category in wide use in other fields. It means that the abstracts themselves are screened selectively by one or more reviewers, before acceptance for oral or poster presentation.)

6. "Kinematics of the Chimpanzee Wrist", R.F. Marzke, M.W. Marzke, B. Steinberg (ASU), K-N. An and R.L. Linscheid (Mayo Clinic), American Journal of Physical Anthropology, Supplement 16, 140 (1993). 1993 meeting of the American Association of Physical Anthropology, Toronto, April 10-13 (given by M.W. Marzke).
7. "Hand and Wrist Kinematics in the Chimpanzee", M.W. Marzke, R.F. Marzke (ASU), K-N. An and R.L. Linscheid (Mayo Clinic), 47th Annual Meeting of the American Society for Surgery of the Hand, Phoenix, November 11-14, 1992.

July 1, 1991 - June 30, 1992

1. "High Pressure NMR in the Diamond Anvil Cell: Effect of Pressure on the Relaxation Times of Organic Liquids", D.P. Raffaele, R.F. Marzke, K.E. Halvorson and G.H. Wolf. American Physical Society March Meeting, Indianapolis, March 16-20, 1992.
2. "High Pressure NMR in the Diamond Anvil Cell: Effect of Pressure on the Proton Chemical Shifts of Organic Liquids", K.E. Halvorson, G.H. Wolf, D.P. Raffaele and R.F. Marzke. APS March Meeting, Indianapolis, March 16-20, 1992.

3. "High Pressure NMR in the Diamond Anvil Cell: Effect of Pressure on the Proton Chemical Shifts and Relaxation Times of Organic Liquids", K.E. Halvorson, G.H. Wolf, D.P. Raffaele and R.F. Marzke. American Geophysical Union Fall Meeting, San Francisco, December 9-13, 1991.
4. "High Pressure NMR Studies of the Glass Transition in the Diamond Anvil Cell", (same authors). American Chemical Society Meeting, New York. August, 1991.
5. "Proton NMR Chemical Shifts in Organic Liquids Measured at High Pressure Using the Diamond Anvil Cell", (same authors). NATO Conference on Frontiers of High Pressure Research, Colorado State University, Fort Collins, July 15-18, 1991.

July 1, 1990 - June 30, 1991

1. "¹H Nuclear Magnetic Relaxation Times in Glycerol Measured to High Pressures", R.F. Marzke, D.P. Raffaele, G.H. Wolf, W.F. Oliver, K.E. Halvorson and C.A. Herbst. APS March Meeting, Cincinnati, March 18-22, 1991.
2. "Proton Spin-lattice Relaxation in Low-Dimensional Ferromagnetic Copper Halides", R.F. Marzke, D.N. Haines, D.P. Raffaele and R.V. Chamberlin, 35th Annual Conference on Magnetism and Magnetic Materials, San Diego, October 29-November 1, 1990.

July 1, 1989 – June 30, 1990

1. "Interaction of Muonium with Oxygen on Silica Powder Surfaces", J.R. Kempton, M. Senba, A.C. Gonzalez, J.J. Pan, A. Tempelmann, D.G. Fleming, R.F. Marzke, P.W. Percival and S.M. Leung. Fifth International Conference on Muon Spin Rotation, Oxford, England, April 9-12, 1990.
34. "MuSR Studies of Interactions between Muonium and Dioxygen Adsorbed onto a Silica Support", R.F. Marzke, J.R. Kempton, D.G. Fleming, M. Senba, A.C. Gonzalez, P.W. Percival and S.M. Leung. APS March Meeting, March 12-17, 1990
3. "NMR and Magnetization of the Heisenberg Ferromagnet (CH₃NH₃)₂Cu_xCd_{1-x}Cl₄: Excitations in Spin Clusters", D.N. Haines, D.P. Raffaele, R.F. Marzke, and R.V. Chamberlin. APS March Meeting, March 12-17, 1990.
4. "MuSR Studies of Interactions Between Muonium and Dioxygen Adsorbed Onto a Silica Support", R.F. Marzke, J. Kempton, D.G. Fleming, M. Senba, A. Gonzales, P.W. Percival and S. Leung, California Catalysis Society Meeting, Fall 1989.

July 1, 1988 – June 30, 1989

1. "MuSR Studies of Adsorbates on a Silica Support", R.F. Marzke, D.G. Fleming, P.W. Percival, J. Kempton, M. Senba and R. Keitel, North American Catalysis Society Meeting, Dearborn, MI, May 1989.
2. "Proton NMR Study of the Effect of Substitution of Li⁺ for NH₄⁺ upon Hydrogen Bonding of NH₃ to S Layers in NH₃ – Intercalated TiS₂", G. W. O'Bannon, R.F. Marzke, M.J. McKelvey and W. S. Glaunsinger, Bull. Am. Phys. Soc. 34, 870 (1989).
3. "Structure and Dynamics of Ammonia in Intercalated TiS₂", G.W. O'Bannon, R.F. Marzke and W.S. Glaunsinger, Program of the 196th Meeting of the American Chemical Society, v. 196, Abstract PHYS 0111, 1988, Los Angeles, September, 1988.

July 1, 1987 – June 30, 1988

1. "Effect of Li Co-intercalation on the Motion, Distorted Structure and Guest-Host Interactions of Ammonia Intercalated into TiS_2 : A Proton NMR Study", G.W. O'Bannon, M.J. McKelvey and W.S. Glaunsinger, 11th International Symposium on the Reactivity of Solids, June, 1988.
2. "Proton NMR Studies of Ammonia-Intercalated TiS_2 ", G.W. O'Bannon, R.F. Marzke and W.S. Glaunsinger, Program of the 194th Meeting of the American Chemical Society, v. 194, Abstract INOR 0302, 1987, New Orleans, August, 1987.
3. "Proton NMR Study of Li-intercalated TiS_2 ", R.F. Marzke, G.W. O'Bannon and W.S. Glaunsinger, Bull. Am. Phys. Soc. 33, 802 (1988), American Physical Society March Meeting, New Orleans, March, 1987.
4. "Muon Spin Rotation Studies of Dioxygen Adsorbed onto a Silica Support", R.F. Marzke, T.Cale, P.W. Percival, D.G. Fleming, M. Senba, R. Keitel and J.H. Brewer, California Catalysis Society Spring Meeting, Menlo Park, 1988.
5. "Muon Spin Rotation Studies of Reactions of Muonium Adsorbates with Platinum Metal Aggregates on Pure Silica Powder Supports", R.F. Marzke, P.W. Percival, J.H. Brewer, R. Keitel, D.G. Fleming, E. J. Ansaldo, M. Senba, D.R. Noakes and D.R. Harshman, Third North American Chemical Congress, Toronto, June, 1988.

July 1, 1986 – June 30, 1987

1. "Measurement of the Reaction Rate of Muonium with the Surface of a Supported Platinum Catalyst by Muonium Spin Rotation (MSR)", R.F. Marzke, W.S. Glaunsinger, D.R. Harshman, E.J. Ansaldo, R. Keitel, D.R. Noakes, M. Senba and J.H. Brewer, Program of the 192nd Meeting of the American Chemical Society, v. 192, Abstract COLL 0195, 1986, Anaheim, CA, September, 1986.
2. "Synthesis, Characterization and Properties of the New Ionic Intercalation Compound $(\text{NH}_4)^{+0.22}\text{TiS}_2^{-0.22}$ ", M.J. McKelvey, G.W. O'Bannon, E.M. Larson, R.B. Von Dreele, W.S. Glaunsinger and R.F. Marzke, Program of the 192nd Meeting of the American Chemical Society, v. 192, Abstract INOR 0245, 1986, Anaheim CA, September, 1986.
3. "Temperature and Loading Dependence of Muonium Relaxation Rates in Silica-Supported Pt Catalysts", R.F. Marzke, D.R. Harshman, E.J. Ansaldo, R. Keitel, M. Senba, D.R. Noakes and J.H. Brewer, Bull. Am. Phys. Soc. 32, 899 (1987), March Meeting of the American Physical Society, New York, March, 1987.
4. "Structure and Motions of Ammonia and Ammonium Molecules in Ammonia-Intercalated TiS_2 , Studied by Proton NMR", G.W. O'Bannon, R.F. Marzke and W.S. Glaunsinger, Bull. Am. Phys. Soc. 32, 559 (1987), American Physical Society Meeting, New York, March, 1987.
5. "Intercalation Chemistry of Ammoniated Titanium Disulfide", M.J. McKelvey, G. W. O'Bannon, R.F. Marzke and W.S. Glaunsinger, Program of the 193rd Meeting of the American Chemical Society, v. 193, Abstract INOR 0306, 1987, Denver, April, 1987.

July 1, 1985 – June 30, 1986

1. "Characterization of Platinum Microcrystals by High Resolution Electron Microscopy, N. J. Long, R.F. Marzke, W.S. Glaunsinger and M. McKelvey, Wickenburg Electron Microscopy Conference, January, 1986.
2. "The Relaxation Rate of Muonium as a Function of Temperature and Loading in Silica-Supported Platinum Catalysts, R.F. Marzke, D.R. Harshman, E.J. Ansaldo, R. Keitel, M. Senba, D.R. Noakes and J.H. Brewer, Wickenburg Electron Microscopy Conference, January, 1986.

3. "Proton Spin-Lattice Relaxation in Ammonia-Intercalated TiS_2 ", G.W. O'Bannon, R.F. Marzke and W.S. Glaunsinger, American Physical Society March Meeting, Las Vegas, March, 1986.

July 1, 1984 – June 30, 1985

1. "Measurement of the Reaction Rate of Muonium with the Surface of a Supported Platinum Catalyst by Muonium Spin Rotation (MSR)", R.F. Marzke, W.S. Glaunsinger, D.R. Harshman, E.J. Ansaldi, R. Keitel, D.R. Noakes, M. Senba and J.H. Brewer, California Catalysis Society Spring Meeting, Menlo Park, CA, April 1985.
2. "Structure and Motions of the Distorted Ammonia Molecule in $\text{Ca}(\text{NH}_3)_6$: Pulsed NMR Results Compared to Theory", K.B. Rawlings, R.F. Marzke and W.S. Glaunsinger, American Physical Society March Meeting, March, 1985.
3. "Measurement of the Reaction Rate of Muonium with the Surface of a Supported Platinum Catalyst by Muonium Spin Rotation (MSR)", R.F. Marzke, W.S. Glaunsinger, D.R. Harshman, E.J. Ansaldi, R. Keitel, D.R. Noakes, M. Senba and J.H. Brewer, American Physical Society March Meeting, March, 1985.

July 1, 1983 – June 30, 1984

1. "The Third Metacarpal Styloid Process: a Force Analysis Employing Magnetic Resonance Imaging", M.W. Marzke and R.F. Marzke, Fall 1984 Meeting of the American Society of Biomechanics, Tucson, 1984. (given by M.W. Marzke)

July 1, 1982 – June 30, 1983

1. "NMR Evidence for Two Ammonia Rotational Hindering Potentials in Solid Metal Hexamines", K.B. Rawlings, R.F. Marzke and W.S. Glaunsinger, American Physical Society March Meeting, Los Angeles, March, 1983.
2. "NMR Evidence for Two Ammonia Rotational Hindering Potentials in the Alkaline Earth Hexamines". K.B. Rawlings, R.F. Marzke and W.S. Glaunsinger, Colloque Weyl VI, Asilomar, CA, June, 1983.

July 1, 1981 – June 30, 1982

1. "Synthesis and Magnetic Properties of Small Platinum Particles", P. Van Rhee, M.J. McKelvey, R.F. Marzke and W.S. Glaunsinger, California Catalysis Society Fall Meeting, September, 1981.
2. "Observation of Proton NMR and of Muon Spin Rotation in Unsupported Platinum", K.B. Rawlings, R.F. Marzke and W.S. Glaunsinger, California Catalysis Society Fall Meeting, September, 1981.
3. "Magnetic Susceptibility, Proton NMR and Muon Spin Rotation Studies of Unsupported Platinum Catalysts with Adsorbed H and O", P. Van Rhee, K.B. Rawlings, R.F. Marzke and W.S. Glaunsinger, American Physical Society March Meeting, March, Dallas, 1982.
4. "Structure and Motion in $\text{Sr}(\text{NH}_3)_6$ and $\text{Ca}(\text{NH}_3)_6$ by Proton NMR", K.B. Rawlings, R.F. Marzke and W.S. Glaunsinger, American Physical Society March Meeting, Dallas, March, 1982.
5. "Effect of Chemisorbed H and O upon the Surface Magnetism of Unsupported Pt", R.F. Marzke, W. S. Glaunsinger and M. Norton, California Catalysis Society Spring Meeting, April, 1982.

July 1, 1980 – June 30, 1981

1. "NMR Studies of Molecular Motions in Metal-Ammonia Compounds", W.S. Glaunsinger, T.R. White and

R.F. Marzke, 22nd Rocky Mountain Conference on NMR, August, 1980.

2. "Synthesis and Magnetic Properties of Platinum Microcrystals", P. Van Rheeën ,M. McKelvy, W.S. Glaunsinger and R.F. Marzke , Bull. Am. Phys. Soc 26, 415 (1981). American Physical Society March Meeting, March, 1981.
3. "Structure and Molecular Motion in Metal-Ammonia Compounds by Pulsed NMR", W.S. Glaunsinger, R.F. Marzke and K.B. Rawlings, Bull. Am. Phys. Soc 26, 415 (1981), American Physical Society March Meeting, March, 1981.
4. "Spin-Lattice Relaxation in $\text{Sr}(\text{NH}_3)_6$ ", W.S. Glaunsinger, R.F. Marzke and K.B. Rawlings, Bull. Am. Phys. Soc 26, 208 (1981), American Physical Society March Meeting, March, 1981.
5. "Electron Microscopy of Platinum Microcrystals", W.S. Glaunsinger, R.F. Marzke, P. Van Rheeën and M. McKelvey, Bull. Am. Phys. Soc 26, 416 (1981), American Physical Society March Meeting, March, 1981..

July 1, 1976 – June 30, 1977

1. "Proton Magnetic Resonance in the Alkaline Earth Hexamines", W.S. Glaunsinger, R.F. Marzke and D.A. Gordon, Bull. Am. Phys. Soc. 22, 384 (1977), American Physical Society March Meeting, March, 1977.

July 1, 1975 – June 30, 1976

1. "NMR of Metal-Ammonia Solids", R.F. Marzke and W.S. Glaunsinger, International Conference on Electrons in Fluids: Colloque Weyl IV, Michigan State University, July, 1976.
2. "Extreme Line Narrowing in Proton NMR in Solid $\text{Sr}(\text{NH}_3)_6$ ", R.F. Marzke, W.S. Glaunsinger and D.A. Gordon, Bull. Am. Phys. Soc. 21, 239 (1976), American Physical Society March Meeting, Atlanta, March, 1976.

July 1, 1974 – June 30, 1975

2. "Observation of CESR in Platinum Microcrystals", W.S. Glaunsinger, and R.F. Marzke, Bull. Am. Phys. Soc. 20, 411 (1975), American Physical Society March Meeting, March, 1975.
2. "Proton NMR in Ferritin-Related Polymers", R.F. Marzke, Bull. Am. Phys. Soc. 20, 45 (1975), American Physical Society March Meeting, March, 1975.