Jill S. Berryman

Maiden: Pinter

Ph.D. Candidate
National Superconducting Cyclotron Laboratory (NSCL) and
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Education

2005- Ph.D. Candidate in Physical Chemistry, Michigan State University, East Lansing, MI.
Research Focus: Spin Polarization in Projectile Fragmentation Reactions and Nuclear Moment Measurements.
Research Advisor: Professor Paul F. Mantica.

2001 B.S. in Chemistry, *summa cum laude*, Hope College, Holland, MI.
B.A. in Physics, *summa cum laude,* Hope College, Holland, MI.

Selected Fellowships and Scholarships

2006-9 National Science Foundation Graduate Research Fellow.
2005 University Distinguished Fellowship, Michigan State University.
2002-4 Arnold and Mabel Beckman Foundation Scholar.
2001-5 VanderWerf Scholarship, Hope College.
2001-5 Jaecker Chemistry Scholarship, Hope College.

Awards

2008 Graduate student award to attend the 58th meeting of Nobel Laureates (dedicated to physics) in Lindau, Germany.
2006 Coryell Award for Undergraduate Research, sponsored by the American Chemical Society (ACS) Division of Nuclear Chemistry and Technology.
2006 Excellence in Teaching Award, Michigan State University.
2005 Gene Van Tamelen Prize for Creativity in the Sciences.
2005 Almon T. Godfrey Prize in Chemistry.
2005 Douwe B. Yntema Prize for Outstanding Performance in Physics.
2004 Outstanding Student Award at ACS/DOE Sponsored Nuclear Chemistry Summer School, Brookhaven National Lab.
2004 Cancer Federation Research Award.
2001 Distinguished Artist Award in Piano, Hope College.

Research Experience

2005- Graduate Research Assistant with Professor Paul F. Mantica
National Superconducting Cyclotron Laboratory (NSCL) and
Department of Chemistry, Michigan State University.
Thesis project: Measurement of the ground state magnetic dipole moment of ^{55}Ni using β-NMR spectroscopy and the study of spin polarization in pure fragmentation reactions. Experience gained in radiation detection, troubleshooting electronics, and programming in C, C++, Fortran, and Tck/Tk. Detectors used include germanium (Ge), sodium iodide (NaI), plastic scintillator, and silicon to detect alpha, beta, and gamma radiation. Experience with dipole magnets, field mapping, magnetic fields produced with rf coils, and LCR resonance circuits.

2002-5 Undergraduate Research with Professors Kenneth L. Brown and Graham F. Peaslee.
Department of Chemistry, Hope College.
Cyclic Voltammetry and its Use in the Detection of Glucose and Hydrazine.
Finished design and characterization of a chemically-modified electrode for detection of glucose. Independently designed and characterized similar electrode for detection of hydrazine, with flow-injection analysis (FIA) and Rutherford backscattering spectrometry (RBS) studies used. . Instruments used include HPLC, GC, mass spec, FT-IR, and NMR. Electrochemical methods used include cyclic voltammetry. Programming experience in LabVIEW.

2000 Summer Research Experience for High School Students
College of Technology, Coatings Research Institute, Eastern Michigan University.
Conducted experiments to assess durability and appearance of coatings. This includes evaluation of coating weatherability, monitoring film formation, and synthesis and properties of new polymers.

Teaching Experience

2005 Teaching Assistant, General Chemistry, Department of Chemistry, Michigan State University. Led recitation section and review sessions.

2002-5 Private Tutor, Hope College.
Tutored students in chemistry and physics.

2003-4 Teaching Assistant, Organic Chemistry, Department of Chemistry, Hope College.
Led an organic chemistry help session once a week and tutored many of the students one-on-one outside of the session.

2002 Teaching Assistant, General Chemistry, Department of Chemistry, Hope College.
Assisted professor in supervising a laboratory section.

Affiliations

American Chemical Society
American Physical Society
Phi Beta Kappa
Sigma Pi Sigma
Sigma Xi

Publications

1. Production and β-decay of *rp*-process nuclei ^{96}Cd, ^{98}In, and ^{100}Sn. D. Bazin, F. Montes, A. Becerril, G. Lorusso, A. Amthor, T. Baumann, H. Crawford, A. Estrade, A. Gade, T. Ginter, C.J. Guess, M. Hausmann, G.W. Hitt, P. Mantica, M. Matos, R. Meharchand, K. Minamisono, G. Perdikakis, J. Pereira, J. Pinter, M. Portillo, H. Schatz, K. Smith, J. Stoker, A. Stolz, and R.G.T. Zegers. Phys. Rev. Lett. 101, 252501 (2008).

2. Intruder configurations in the *A*=33 isobars: ^{33}Mg and ^{33}Al. Vandana Tripathi, S.L. Tabor, P.F. Mantica, Y. Utsuno, P. Bender, J. Cook, C.R. Hoffman, Sangjin Lee, T. Otsuka, J. Pereira, M. Perry, K. Pepper, J.S. Pinter, J. Stoker, A. Volya, and D. Weisshaar. Phys. Rev. Lett. 101 142504 (2008).

3. Quadrupole moment of ^{37}K. K. Minamisono, P.F. Mantica, H.L. Crawford, J.S. Pinter, J.B. Stoker, Y. Utsuno, and R.R. Weerasiri. *Phys. Lett. B* 662 389 (2008)

4. Fast switching NMR system for measurements of ground-state quadrupole moments of short-lived nuclei. K. Minamisono, R.R. Weerasiri, H.L. Crawford, P.F. Mantica, K. Matsuta, T. Minamisono, J.S. Pinter, and J.B. Stoker. *NIM A* 589 185 (2008)

5. Excited intruder states in ^{32}Mg. Vandana Tripathi, S.L. Tabor, P. Bender, C.R. Hoffman, Sangjin Lee, K. Pepper, M. Perry, P.F. Mantica, J.M. Cook, J. Pereira, J.S. Pinter, J.B. Stoker, D. Weisshaar, Y. Utsuno, and T. Otsuka. *Phys. Rev. C* 77 034310 (2008)

6. Beta-decay of neutron rich $^{53\text{-}56}$Ca. P.F. Mantica, R. Broda, H.L. Crawford, A. Damaske, B. Fornal, A.A. Hecht, C. Hoffman, M. Horoi, N. Hoteling, R.V.F. Janssens, J. Pereira, J.S. Pinter, J.B. Stoker, S.L. Tabor, T. Sumikama, W.B. Walters, X. Wang, and S. Zhu. *Phys. Rev. C* 77 014343 (2008)

7. Nuclear spin polarization following intermediate-energy heavy-ion reactions. D.E. Groh, J.S. Pinter, P.F. Mantica, T.J. Mertzimekis, A.E. Stuchbery, and D.T. Khoa. *Phys. Rev. C* 76 054608 (2007)

8. Onset of isomers in ^{125,126,127,128}Cd and weakened neutron-neutron interaction strength. N. Hoteling, W.B. Walters, B.E. Tomlin, P.F. Mantica, J. Pereira, A. Becerril, T. Fleckenstein, A.A. Hecht, G. Lorusso, M. Quinn, J.S. Pinter, and J.B. Stoker. *Phys. Rev. C* 76, 044324 (2007)

9. Competition between normal and intruder states inside the “island of inversion”. Vandana Tripathi, S.L. Tabor, P.F. Mantica, Y. Utsuno, P. Bender, J. Cook, C.R. Hoffman, Sangjin Lee, T. Otsuka, J. Pereira, M. Perry, K. Pepper, J.S. Pinter, J. Stoker, A. Volya, and D. Weisshaar. *Phys. Rev. C* 76, 021301(R) (2007)

10. Amperometric Detection of Hydrazine by Cyclic Voltammetry and Flow Injection Analysis using Ruthenium Modified Glassy Carbon Electrodes. J.S. Pinter, K.L. Brown, P.A. DeYoung, and G.F. Peaslee. *Talanta,* 71, 1219 (2007)

11. Nuclear Magnetic Moment of the ^{57}Cu Ground State. K. Minamisono, P.F. Mantica, T.J. Mertzimekis, A.D. Davies, M. Hass, J. Pereira, J.S. Pinter, W.F. Rogers, J.B. Stoker, B.E. Tomlin, and R.R. Weerasiri. *Phys. Rev. Lett.* 96, 102501 (2006)

12. Amperometric Detection of Glucose Involving Electropolymerized Tetraaminophthalocyanine and Ferrocene Films. K.L. Brown, J.S. Pinter, K.L. Ewing, T.R. Ruch, M. Ambrose, and

I. Hesslesweet. *Anal. Lett.* 38, 769-780 (2005)

Research Presentations

1. Cyclic Voltammetry and the Use of Phthalocyanines and Ferrocene in the Detection of Glucose. Undergraduate Research Celebration, Hope College, Holland, MI. October 2003. [poster]

2. Cyclic Voltammetry and the Use of Phthalocyanines and Ferrocene in the Detection of Glucose. PEW Undergraduate Research Symposium, University of Chicago, Chicago, IL. November 2003. [talk]

3. Cyclic Voltammetry and the Use of Phthalocyanines and Ferrocene in the Detection of Glucose. American Chemical Society National Meeting, Anaheim, CA. 27 March-1 April 2004. [poster]

4. Cyclic Voltammetry and the Use of Phthalocyanines and Ferrocene in the Detection of Glucose. American Physical Society National Meeting, Denver, CO. 1-4 May 2004. [talk]

5. The Detection of Glucose using Electropolymerized Tetraaminophthalocyanine and Ferrocene Films. Beckman Scholar Symposium, Beckman Center, Irvine, CA. 29-31 July 2004. [poster]

6. Chemically Modified Electrodes with Applications in the Detection of Glucose and Hydrazine. American Chemical Society National Meeting, San Diego, CA. 13-17 March 2005.

7. Spin Polarization Produced in Fragmentation Reactions. RIA Summer School on Physics with Radioactive Ion Beams, Oak Ridge National Laboratory, Oak Ridge, TN. 17-22 July 2006. [talk]

8. Spin Polarization Produced in Fragmentation Reactions. American Chemical Society National Meeting, San Francisco, CA. 10-14 Sept 2006. [talk]

9. Magnetic Moment Measurements at the National Superconducting Cyclotron Laboratory (NSCL). Student Forum Talk, Tokyo Institute of Technology, Tokyo, Japan. 22 Jan. 2007. [talk]

10. Spin Polarization and the Magnetic Moment Measurement of ^{55}Ni. International Workshop, Tokyo Institute of Technology, Tokyo, Japan. 23 Jan. 2007. [talk]

11. Magnetic Moment Measurement of ^{55}Ni. Graduate Student Forum, The Australian National University, Canberra, ACT 0200, Australia. 6 Sept. 2007. [talk]

Additional Activities

1. Women in Chemistry at Michigan State University
   2005 Participated in Chemistry Day at Impression 5 science center.
   Set up and ran two experiments with children of all ages.
   2006 Co-organized and ran Scout Day at Michigan State University.

Approximately 60 boy and girl scouts in 6th, 7th, and 8th grades performed experiments and listened to talks to receive their Chemistry Merit Badges.

Participated in the Making Strides against Breast Cancer 5k walk.

2007 Co-organized and ran Scout Day at Michigan State University, as in 2006.

Co-organized and ran Science Olympiad at Michigan State University

Wrote the nuclear chemistry portion of the hands-on experimental exam given to high school students who made it to the state finals, held at MSU.

2008 Participated in "10 years of Women in Chemistry" at MSU.

Celebrated the 10th anniversary of our organization by holding a career workshop for women in the sciences.

2. Member of the Safety Committee at NSCL, 2007-2008.
3. Member of the Seminar Committee at NSCL, 2006.
4. Served on the Orientation Committee for incoming graduate students, 2006.