

# UNIVERSITY OF MARYLAND

Department of Physics  
College Park, Maryland 20742

## Curriculum Vitae

*Elizabeth J. Beise*

*Professor of Physics*

### I. Education:

B.A. (cum laude), Carleton College, Northfield, MN, 1981  
Ph.D. Massachusetts Institute of Technology, 1988

### II. Experience:

1988-90 Research Fellow, Kellogg Radiation Lab, California Institute of Technology  
1990-93 Senior Research Fellow Kellogg Radiation Lab, California Institute of Technology  
1993-97 Assistant Professor, Department of Physics, University of Maryland  
1997-02 Associate Professor, Department of Physics, University of Maryland  
2002- Professor, Department of Physics, University of Maryland  
2004-2006 Program Director for Nuclear Physics, National Science Foundation

### III. Publications:

See attached

### IV. Professional Activities:

Phi Beta Kappa (1981)  
Member, American Physical Society (1982)  
Member, Bates User's Group Nominating Committee, 1990  
Member, CEBAF User's Group Board of Directors, 1993-95  
Co-organizer of parallel session for V<sup>th</sup> International Conference on the  
Intersections of Particle & Nuclear Physics, St. Petersburg, FL, June 1994.  
Co-organizer of parallel session for 8<sup>th</sup> International SPIN94 Conference,  
Bloomington, IN, September 1994.  
Member, APS Division of Nuclear Physics Executive Committee, 1994-96.  
Member, NSAC Long Range Plan Writing Group, 1995  
Chair, CEBAF User's Group Board of Directors, 1996  
Member, Bates User's Group Board of Directors, 1998-  
Chair, JLAB Board of Directors Search Committee, 1999  
Co-organizer, parallel session on nucleon structure, BARYONS 98, Bonn, Germany, Sept. 98  
Member, PANIC99 Program Committee, Uppsala, Sweden, June 1999  
Nuclear Science Advisory Committee (NSAC), 1999-2001  
NSAC Long Range Plan Writing Group, 1995, 2001  
Associate Editor, Nuclear Physics A, 1999-  
Program Committee, *Baryons 2001*, Jefferson Lab, September 2001  
Program Committee, *Workshop on Electromagnetic Nuclear Physics at Low Momentum Transfer*,  
Halifax, N.S., August 2001  
APS Committee on the Status of Women in Physics, 1999-2001

DNP Public Information Committee, 1999-2001  
Member, Search Committee for Jefferson Laboratory Director, 2001  
Member, Search Committee for Physical Review C Editor, 2001  
DNP National Nuclear Physics Summer School Committee, 2000-2003 (Chair in 2002)  
Physics Advisory Board, Carnegie Mellon University, 2002  
Jefferson Lab Science+Technology Review Committee, Summer 2002  
DOE Panel review of TUNL/Duke University, 2002  
Chair, Photonuclear Gordon Conference, 2002  
TUNL Advisory Board, 2002-  
Institute for Nuclear Theory Advisory Panel, 2002-2004  
DNP Program Committee, 2002-2004  
Dept of Energy Committee of Visitors (Nucl. Phys. Review Panel), 2003  
Chair, NSF Panel Review of Medium Energy Physics, 2003  
DNP Nominating Committee, 2003-2005 (Chair in 2004)

V. **Honors and Awards:**

Peter T. Demos Award for research at the Bates Accelerator, 1988  
NSF Young Investigator Award, 1995-99.  
University of Maryland General Research Board Semester Award, Fall 1997  
Maria Goeppert-Mayer Award, APS, 1998  
APS Centennial Speaker, 1998/99 academic year  
APS Fellow, 2002  
U Md Faculty-mentor Phillip Merrill Scholarship Award (2004-05)

VI. **Theses Directed:**

Mohring, Richard Matthew, A comparison of longitudinal and transverse cross sections in the  $p(e, e'K^+)\Lambda$  and  $p(e, e'K^+)\Sigma^0$  reactions, Ph.D. thesis, 1999.

Gustafsson, Kenneth K., Measurement of deuteron tensor polarization in elastic electron scattering, Ph.D. thesis, 2000.

Spayde, Damon T., Measurement of the strange magnetic form factor of the proton using elastic electron scattering, Ph.D. thesis, 2001.

A. Papers published (or accepted for publication) in refereed journals

Physics research

- 1) Reaction  $^{58}\text{Ni}(\pi^+, 2p)$  at 160 MeV, W. J. Burger, E. Beise, S. Gilad, R. P. Redwine, P. G. Roos, N. S. Chant, H. Breuer, G. Ciangaru, J. D. Silk, G. S. Blanpied, B. M. Preedom, B. G. Ritchie, M. Blecher, K. Gotow, D. M. Lee, and H. Ziock, *Phys. Rev. Lett.* **57**, 58 (1986).
- 2) Measurement of  $^{16}\text{O}(\gamma, n)^{15}\text{O}$  at medium energies, E. J. Beise, G. Dodson, M. Garçon, S. Høibråten, C. Maher, L. D. Pham, R. P. Redwine, W. Sapp, K. E. Wilson, S. A. Wood, and M. Deady, *Phys. Rev. Lett.* **62**, 2593 (1989).
- 3) A recoil proton spectrometer for photoneutron knockout experiments, E. J. Beise, M. Garçon, S. Gilad, S. Høibråten, L. D. Pham, R. P. Redwine, G. van der Steenhoven, C. F. Williamson, and S. A. Wood, *Nucl. Instrum. Methods* **A281**, 559 (1989).
- 4) Proton propagation in nuclei in the A-dependence of the  $(e, e'p)$  reaction in the quasifree region, D. F. Geesaman, R. Gilman, M. C. Green, R. J. Holt, J. P. Schiffer, B. Zeidman, G. Garino, M. Saber, R. E. Segel, E. J. Beise, G. W. Dodson, S. Høibråten, L. D. Pham, R. P. Redwine, W. W. Sapp, C. F. Williamson, S. A. Wood, N. S. Chant, P. G. Roos, J. D. Silk, M. Deady, and S. K. Maruyama, *Phys. Rev. Lett.* **63**, 734 (1989).
- 5) Reaction  $^{58}\text{Ni}(\pi^+, pp)$  at  $T_{\pi^+} = 160$  MeV, W. J. Burger, E. Beise, S. Gilad, R. P. Redwine, P. G. Roos, N. S. Chant, H. Breuer, G. Ciangaru, J. D. Silk, G. S. Blanpied, B. M. Preedom, B. G. Ritchie, M. Blecher, K. Gotow, D. M. Lee, and H. Ziock, *Phys. Rev. C* **41**, 2215 (1990).
- 6) Measurement of inclusive quasielastic scattering of polarized electrons from polarized  $^3\text{He}$ , C. E. Woodward, E. J. Beise, J. E. Belz, R. W. Carr, B. W. Filippone, W. B. Lorenzon, R. D. McKeown, B. Mueller, T. G. O'Neill, G. Dodson, K. Dow, M. Farkhondeh, S. Kowalski, K. Lee, N. Makins, R. Milner, A. Thompson, D. Tieger, J. van den Brand, A. Young, X. Yu, and J. D. Zumbro, *Phys. Rev. Lett.* **65**, 698 (1990).
- 7) Neutral weak form factors and strangeness in the proton, E. J. Beise and R. D. McKeown, *Comments Nucl. Part. Phys.* **20**, 105 (1991).
- 8) Measurement of tensor polarization in elastic electron-deuteron scattering in the momentum-transfer range  $3.8 \leq q \leq 4.6 \text{ fm}^{-1}$ , I. The, J. Arvieux, D. H. Beck, E. J. Beise, A. Boudard, E. B. Cairns, J. M. Cameron, G. W. Dodson, K. A. Dow, M. Farkhondeh, H. W. Fielding, J. B. Flanz, M. Garçon, R. Goloskie, S. Høibråten, J. Jourdan, S. Kowalski, C. Lapointe, W. J. McDonald, B. Ni, L. D. Pham, R. P. Redwine, N. L. Rodning, G. Roy, M. E. Schulze, P. A. Souder, J. Soukup, W. E. Turchinets, C. F. Williamson, K. E. Wilson, S. A. Wood, and W. Ziegler, *Phys. Rev. Lett.* **67**, 173 (1991).
- 9) Determination of the neutron electric form factor in quasielastic scattering of polarized electrons from polarized  $^3\text{He}$ , C. E. Jones-Woodward, E. J. Beise, J. E. Belz, R. W. Carr, B. W. Filippone, W. Lorenzon, R. D. McKeown, B. A. Mueller, T. G. O'Neill, G. Dodson, K. Dow, M. Farkhondeh, S. Kowalski, K. Lee, N. Makins, R. Milner, A. Thompson, D. Tieger, J. F. J. van den Brand, A. Young, X. Yu, and J. D. Zumbro, *Phys. Rev. C* **44**, R571 (1991).

- 10) A variable energy Møller polarimeter at the MIT-Bates Linear Accelerator Center, J. Arrington, E. J. Beise, B. W. Filippone, T. G. O'Neill, W. R. Dodge, G. W. Dodson, K. A. Dow, and J. D. Zumbro, *Nucl. Instrum. Methods* **A311**, 39 (1992).
- 11) Proton propagation in nuclei studied in the  $(e, e'p)$  reaction, G. Garino, M. Saber, R. E. Segel, D. F. Geesaman, R. Gilman, M. C. Green, R. J. Holt, J. P. Schiffer, B. Zeidman, E. J. Beise, G. W. Dodson, S. Høibråten, L. D. Pham, R. P. Redwine, W. W. Sapp, C. F. Williamson, S. A. Wood, N. S. Chant, P. G. Roos, J. D. Silk, M. Deady, and X. K. Maruyama, *Phys. Rev. C* **45**, 780 (1992).
- 12) Exclusive  $^{16}\text{O}(\gamma, \pi^- p)$  reaction in the  $\Delta$  resonance region, L. D. Pham, S. Høibråten, R. P. Redwine, D. R. Tieger, G. van der Steenhoven, K. E. Wilson, M. E. Yuly, F. J. Federspiel, R. A. Eisenstein, A. M. Nathan, S. A. Wood, and E. J. Beise, *Phys. Rev. C* **46**, 621 (1992).
- 13)  $^3\vec{\text{He}}(\vec{e}, e')$  quasielastic asymmetry, C. E. Jones, E. J. Beise, J. E. Belz, R. W. Carr, B. W. Filippone, W. Lorenzon, R. D. McKeown, B. A. Mueller, T. G. O'Neill, G. W. Dodson, K. Dow, M. Farkhondeh, S. Kowalski, K. Lee, N. Makins, R. Milner, A. Thompson, D. Tieger, J. F. J. van den Brand, A. Young, X. Yu, and J. D. Zumbro, *Phys. Rev. C* **47**, 110 (1993).
- 14) Tensor polarization in elastic electron-deuteron scattering in the momentum transfer range  $3.8 \leq Q \leq 4.6 \text{ fm}^{-1}$ , M. Garçon, J. Arvieux, D. H. Beck, E. J. Beise, A. Boudard, E. B. Cairns, J. M. Cameron, G. W. Dodson, K. A. Dow, M. Farkhondeh, H. W. Fielding, J. B. Flanz, R. Goloskie, S. Høibråten, J. Jourdan, S. Kowalski, C. Lapointe, W. J. McDonald, B. Ni, L. D. Pham, R. P. Redwine, N. L. Rodning, G. Roy, M. E. Schulze, P. A. Souder, J. Soukup, I. The, W. E. Turchinets, C. F. Williamson, K. E. Wilson, S. A. Wood, and W. Ziegler, *Phys. Rev. C* **49**, 2516 (1994).
- 15) Intermediate-energy semileptonic probes of the hadronic neutral current, M. J. Musolf, T. W. Donnelly, J. Dubach, S. J. Pollock, S. Kowalski, and E. J. Beise, *Physics Reports* **239**, 1 (1994) (invited).
- 16) Momentum transfer dependence of nuclear transparency from the quasielastic  $^{12}\text{C}(e, e'p)$  reaction, N. C. R. Makins, R. Ent, M. S. Chapman, J.-O. Hansen, K. Lee, R. G. Milner, J. Nelson, R. G. Arnold, P. E. Bosted, C. E. Keppel, A. Lung, S. E. Rock, M. Spengos, Z. M. Szalata, L. H. Tao, J. L. White, K. P. Coulter, D. F. Geesaman, R. J. Holt, H. E. Jackson, V. Papvassiliou, D. H. Potterveld, B. Zeidman, J. Arrington, E. J. Beise, E. Belz, B. W. Filippone, H. Gao, W. Lorenzon, B. Mueller, R. D. McKeown, T. G. O'Neill, M. Epstein, D. J. Margaziotis, J. Napolitano, and E. Kinney, *Phys. Rev. Lett.* **72**, 1986 (1994).
- 17) Measurement of the neutron magnetic form factor from inclusive quasielastic scattering of polarized electrons from polarized  $^3\text{He}$ , H. Gao, J. Arrington, E. J. Beise, B. Bray, R. W. Carr, B. W. Filippone, A. Lung, R. D. McKeown, B. Mueller, M. L. Pitt, C. E. Jones, D. DeSchepper, G. Dodson, K. Dow, R. Ent, M. Farkhondeh, J.-O. Hansen, W. Korsch, L. H. Kramer, K. Lee, N. Makins, R. G. Milner, D. R. Tieger, T. P. Welch, E. Candell, J. Napolitano, B. B. Wojtsekhowski, C. Tripp, and W. Lorenzon, *Phys. Rev. C* **50**, R546 (1994).

- 18) Two-body photodisintegration of the deuteron up to 2.8 GeV, J. E. Belz, D. H. Potterveld, P. Anthony, R. G. Arnold, J. Arrington, D. Beck, E. J. Beise, P. E. Bosted, H.-J. Bulten, M. S. Chapman, K. P. Coulter, F. Dietrich, R. Ent, M. Epstein, B. W. Filippone, H. Gao, D. F. Geesaman, J.-O. Hansen, R. J. Holt, H. E. Jackson, C. E. Jones, C. E. Keppel, E. R. Kinney, S. Kuhn, K. Lee, W. Lorenzon, A. Lung, N. C. R. Makins, D. J. Margaziotis, R. D. McKeown, Z. E. Meziani, R. G. Milner, B. Mueller, J. Napolitano, J. Nelson, T.G. O'Neill, V. Papavassiliou, G. G. Petratos, S. E. Rock, R. E. Segel, M. Spengos, Z. M. Szalata, L. H. Tao, K. van Bibber, J. F. J. van den Brand, J. L. White, and B. Zeidman, *Phys. Rev. Lett.* **74**, 646 (1995).
- 19) Transverse-longitudinal asymmetry in the quasielastic  ${}^3\vec{\text{He}}(\vec{e}, e')$  reaction, J.-O. Hansen, M. A. Titko, D. DeSchepper, G. Dodson, T. W. Donnelly, K. Dow, R. Ent, M. Farkhondeh, W. Korsch, L. H. Kramer, K. Lee, N. C. R. Makins, R. G. Milner, D. R. Tieger, T. P. Welch, C. E. Jones, J. Arrington, E. J. Beise, B. Bray, R. W. Carr, B. W. Filippone, H. Gao, A. Lung, R. D. McKeown, B. Mueller, M. L. Pitt, R.-W. Schulze, P. U. Sauer, E. Candell, J. Napolitano, C. Tripp, B. B. Wojtsekhowski, and W. Lorenzon, *Phys. Rev. Lett.* **74**, 654 (1995).
- 20) Measurements of quasi-elastic pion single charge exchange on  ${}^3\text{He}$  at  $T_\pi = 245$  MeV, M. L. Dowell, S. Gilad, E. Piassetzky, S. Høibråten, H. W. Baer, E. J. Beise, J. D. Bowman, G. W. Dodson, F. Irom, J. N. Knudson, G. S. Kyle, M. J. Leitch, L. D. Pham, R. P. Redwine, S. H. Rokni, L. C. Smith, D. R. Tieger, and S. A. Wood, *Phys. Lett.* **B344**, 91 (1995).
- 21) Exclusive electron scattering from deuterium at high momentum transfer, H. J. Bulten, P. L. Anthony, R. G. Arnold, J. Arrington, E. J. Beise, E. Belz, K. van Bibber, P. E. Bosted, J. F. J. van den Brand, M. S. Chapman, K. P. Coulter, F. S. Dietrich, R. Ent, M. Epstein, B. W. Filippone, H. Gao, R. A. Gearhart, D. F. Geesaman, J.-O. Hansen, R. J. Holt, H. E. Jackson, C. E. Jones, C. E. Keppel, E. Kinney, S. E. Kuhn, K. Lee, W. Lorenzon, A. Lung, N. C. R. Makins, D. J. Margaziotis, R. D. McKeown, R. G. Milner, B. Mueller, J. Napolitano, J. Nelson, T. G. O'Neill, V. Papavassiliou, G. G. Petratos, D. H. Potterveld, S. E. Rock, M. Spengos, Z. M. Szalata, L. H. Tao, J. L. White, and B. Zeidman, *Phys. Rev. Lett.* **74**, 4775 (1995).
- 22) A-dependence of nuclear transparency in quasielastic  $A(e, e'p)$  at high  $Q^2$ , T. G. O'Neill, W. Lorenzon, P. Anthony, R. G. Arnold, J. Arrington, E. J. Beise, J. E. Belz, P. E. Bosted, H.-J. Bulten, M. S. Chapman, K. P. Coulter, F. Dietrich, R. Ent, M. Epstein, B. W. Filippone, H. Gao, R. A. Gearhart, D. F. Geesaman, J.-O. Hansen, R. J. Holt, H. E. Jackson, C. E. Jones, C. E. Keppel, E. R. Kinney, S. Kuhn, K. Lee, A. Lung, N. C. R. Makins, D. J. Margaziotis, R. D. McKeown, R. G. Milner, B. Mueller, J. Napolitano, J. Nelson, V. Papavassiliou, G. G. Petratos, H. D. Potterveld, S. E. Rock, M. Spengos, Z. M. Szalata, L. H. Tao, K. van Bibber, J. F. J. van den Brand, J. L. White, and B. Zeidman, *Phys. Lett.* **B351**, 87 (1995).
- 23) Measurement of the spin-dependent asymmetry in  ${}^3\vec{\text{He}}(\vec{e}, e')$  inelastic scattering at low energy transfer, C. Jones, J. Arrington, E. J. Beise, B. Bray, R. W. Carr, B. W. Filippone, H. Gao, A. Lung, R. D. McKeown, B. Mueller, M. L. Pitt, D. DeSchepper, G. Dodson, K. Dow, R. Ent, M. Farkhondeh, J.-O. Hansen, W. Korsch, L. H. Kramer, K. Lee, N. C. R. Makins, R. G. Milner, D. R. Tieger, T. P. Welch, E. Candell, J. Napolitano, C. Tripp, B. B. Wojtsekhowski, and W. Lorenzon, *Phys. Rev. C* **52**, 1520 (1995).

- 24) Evidence for virtual Compton scattering from the proton, J. F. J. van den Brand, R. Ent, P. L. Anthony, R. G. Arnold, J. Arrington, E. J. Beise, J. E. Belz, P. E. Bosted, H.-J. Bulten, M. S. Chapman, K. P. Couter, F. S. Dietrich, M. Epstein, B. W. Filippone, H. Gao, R. A. Gearhart, D. F. Geesaman, J.-O. Hansen, R. J. Holt, H. E. Jackson, C. E. Jones, C. E. Keppel, E. R. Kinney, S. Kuhn, K. Lee, W. Lorenzon, A. Lung, N. C. R. Makins, D. J. Margaziotis, R. D. McKeown, R. G. Milner, B. Mueller, J. Napolitano, J. Nelson, T. G. O'Neill, V. Papavassiliou, G. G. Petratos, D. H. Potterveld, S. E. Rock, M. Spengos, Z. M. Szalata, L. H. Tao, K. van Bibber, D. A. Wasson, J. L. White, and B. Zeidman, *Phys. Rev. D* **52**, 4868 (1995).
- 25) Inclusive electron scattering from nuclei at  $x \simeq 1$ , J. Arrington, P. Anthony, R. G. Arnold, E. J. Beise, J. E. Belz, P. E. Bosted, H.-J. Bulten, M. S. Chapman, K. P. Coulter, F. Dietrich, R. Ent, M. Epstein, B. W. Filippone, H. Gao, R. A. Gearhart, D. F. Geesaman, J.-O. Hansen, R. J. Holt, H. E. Jackson, C. E. Jones, C. E. Keppel, E. R. Kinney, S. Kuhn, K. Lee, W. Lorenzon, A. Lung, N. C. R. Makins, D. J. Margaziotis, R. D. McKeown, R. G. Milner, B. Mueller, J. Napolitano, J. Nelson, T. G. O'Neill, V. Papavassiliou, G. G. Petratos, D. H. Potterveld, S. E. Rock, M. Spengos, Z. M. Szalata, L. H. Tao, K. van Bibber, J. F. J. van den Brand, J. L. White, D. Winter, and B. Zeidman, *Phys. Rev. C* **53**, 2248 (1996).
- 26) A high power liquid hydrogen target for parity violation experiments, E. J. Beise, D. H. Beck, E. Candell, R. Carr, F. Duncan, T. Forest, W. Korsch, J. W. Mark, R. D. McKeown, B. A. Mueller, M. Pitt, and S. Wells, *Nucl. Instrum. Methods* **A378**, 383 (1996).
- 27) Measurement of the proton's neutral weak magnetic form factor, B. Mueller, D. H. Beck, E. J. Beise, E. Candell, L. Cardman, R. Carr, R. C. DiBari, G. Dodson, K. Dow, F. Duncan, M. Farkhondeh, B. W. Filippone, T. Forest, H. Gao, W. Korsch, S. Kowalski, A. Lung, R. D. McKeown, R. Mohring, J. Napolitano, D. Nilsson, M. Pitt, N. Simicevic, B. Terburg, and S. Wells, *Phys. Rev. Lett.* **78**, 3824 (1997).
- 28) Measurement of the analyzing power  $A_{y0}$  for the reaction  $H(\vec{p}, d)\pi^+$  between 1000 and 1300 MeV, J. Goy, C. Furget, S. Kox, A. Pastor, J. S. Real, J. Arvieux, E. J. Beise, L. Bimbot, E. Brash, H. Breuer, G. Collins, C. Djalali, F. Duncan, J. E. Ducret, M. Garçon, R. Gilman, C. Glashausser, V. P. Ladygine, M. Morlet, F. Merchex, P. Rutt, E. Tomasi-Gustafsson, and E. Voutier, *Phys. Rev. C* **57**, 420 (1998).
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- 50) Basic Instrumentation for Hall A at Jefferson Lab, B. D. Anderson, K. A. Aniol, D. S. Armstrong, L. Auerbach, T. Averett, F. T. Baker, M. Baylac, E. J. Beise, J. Berthot, P.-Y. Bertin, W. Bertozzi, L. Bimbot, T. Black, W. U. Boeglin, E. J. Brash, V. Breton, H. Breuer, D. Brown, E. Burtin, J. R. Calarco, L. Cardman, G. D. Cates, C. Cavata, Z. Chai, C. C. Chang, N. S. Chant, J.-P. Chen, S. Choi, E. Chudakov, S. Churchwell, E. Cisbani, N. Colombel, D. S. Dale, N. Degrande, C. W. de Jager, R. De Leo, A. Deur, B. Diederich, S. Dieterich, R. di Salvo, P. Djawotho, J. Domingo, J.-E. Ducret, D. Dutta, K. Egiyan, M. B. Epstein, S. Escoffier, L. A. Ewell, J. M. Finn, K. G. Fissum, H. Fonvieille, B. Frois, S. Frullani, H. Gao, J. Gao, F. Garibaldi, A. Gasparian, O. Gayou, S. Gilad, R. Gilman, A. Glamazdin, C. Glashauser, J. Gomez, V. Gorbenko, T. Gorringer, K. Griffioen, O. Hansen, F. W. Hersman, R. Holmes, H. Holmgren, M. Holtrop, N. d'Hose, E. Hovhannisyan, C. Howell, G. M. Huber, C. E. Hyde-Wright, S. Incerti, M. Iodice, R. Iommi, D. Ireland, S. Jaminion, J. Jardillier, S. Jensen, X. Jiang, C. Jones, M. K. Jones, K. Joo, C. Jutier, W. Kahl, S. Kato, M. Katramatrou, J. J. Kelly, S. Kerhoas, A. Ketikyan, M. Khandaker, M. Khayat, K. Kino, I. Kominis, W. Korsch, S. Kox, K. Kramer, L. Kramer, K. S. Kumar, G. Kumbartzki, M. Kuss, G. Laveissière, A. Leone, J. J. LeRose, L. Levchuk, M. Leuschner, D. Lhuillier, M. Liang, K. Livingston, R. A. Lindgren, N. Liyanage, G. J. Lolos, R. W. Lourie, R. Madey, K. Maeda, S. Malov, D. M. Manley, D. J. Margaziotis, P. Markowitz, J. Marroncle, J. Martino, S. Mayilyan, J. S. McCarthy, K. McCormick, J. McIntyre, D. Meekins, R. L. J. van der Meer, Z.-E. Meziani, R. Michaels, B. Milbrath, W. Miller, J. Mitchell, J. Mougey, S. Nanda, A. Nathan, D. Neyret, E. A. J. M. Offermann, Z. Papandreou, C. F. Perdrisat, R. Perrino, G. G. Petratos, A. Petrosyan, S. Platchkov, R. Pomatsalyuk, D. L. Prout, V. A. Punjabi, T. Pussieux, G. Quémener, R. D. Ransome, B. Raue, O. Ravel, J. Reinhold,

B. Reitz, Y. Roblin, R. Roche, M. Roedelbronn, O. A. Rondon-Aramayo, P. G. Roos, D. Rowntree, G. A. Rutledge, P. M. Rutt, M. Rvachev, F. Sabatie, A. Saha, T. Saito, A. J. Sarty, A. Serdarevic-Offermann, A. Shahinyan, K. Slifer, T. P. Smith, A. Soldi, P. Sorokin, P. Souder, S. Strauch, R. Suleiman, J. A. Templon, T. Terasawa, L. Todor, H. Tsubota, H. Ueno, P. E. Ulmer, G. M. Urciuoli, L. Van de Hoorebeke, R. Van de Vyver, S. van Verst, P. Vernin, B. Vlahovic, H. Voskanyan, E. Voutier, R. Walter, J. W. Watson, D. Watts, L. B. Weinstein, K. Wijesooriya, R. Wilson, B. Wojtsekhowski, H. Xiang, F. Xiong, W. Xu, D. G. Zainea, V. Zeps, J. Zhao, X. Zheng, Z.-L. Zhou (The Jefferson Lab Hall A Collaboration), Nucl. Instrum. Methods **A522**, 294 (2004).

- 51) The SAMPLE experiment and weak nucleon structure, E. J. Beise, M. L. Pitt, and D. T. Spayde, Prog. Part. Nucl. Phys. **54**, 289 (2005) (published on the Elsevier Web site in 2004).

## B. Papers presented at scientific meetings

### 1. Invited papers

Measurement of  $^{16}\text{O}(\gamma, n)$  at medium energies, E. J. Beise, Gordon Research Conference on Photonuclear Reactions, Plymouth, NH, August 1988.

Neutral weak form factors of the proton: proposed experiments, E. J. Beise, BARYONS 92 Conference, Yale University, New Haven, CT, June 1992.

Parity-violating electron scattering at Bates and CEBAF, E. J. Beise, Workshop of Future Directions in Particle and Nuclear Physics at Multi-GeV Hadron Facilities, Brookhaven National Laboratory, March 1993.

Parity-violating electron scattering at Bates and CEBAF, E. J. Beise, CEBAF Summer Retreat, Snowshoe, WV, May 1993.

Parity violation and strangeness in nuclear systems, E. J. Beise, Workshop on CEBAF at Higher Energies, CEBAF, Newport News, VA, April 1994.

Summary of lepton probes of hadronic structure, E. J. Beise, 5th International Conference on Intersections between Particles and Nuclei, St. Petersburg, FL, May 1994.

Parity violating electron scattering at Bates and CEBAF, E. J. Beise, APS Division of Nuclear Physics Fall Meeting, Williamsburg, VA, September 1994.

Summary of hadron form factors, E. J. Beise, *SPIN'94*, Eighth International Symposium on Polarization Phenomena in Nuclear Physics, Bloomington, IN, September 1994.

Neutral weak currents in the proton, E. J. Beise, NSAC Town Meeting on Electromagnetic Physics, Argonne National Laboratory, Argonne, IL, January 1995.

SAMPLE: Parity violating electron scattering from hydrogen and deuterium, Ninth Amsterdam Mini Conference, Amsterdam, Netherlands, February 1996.

Parity violating electron scattering experiments, *SPIN'96*, 12th International Symposium on High Energy Spin Physics, Amsterdam, September 1996.

Strangeness in the nucleon, APS Division of Nuclear Physics Fall Meeting, Workshop on the Quark-Gluon Structure of the Nucleon, Cambridge, MA, October 1996.

Parity violating electron scattering: Experiments, E. J. Beise, 7th International Conference on Hadron Spectroscopy (HADRON97), Brookhaven National Lab, Upton, NY, August 1997.

Electron Scattering and Nucleon Structure, Elizabeth Beise, VI<sup>th</sup> Hadron Physics Conference, Florianopolis, Brazil, March 1998.

Electron Scattering and Nucleon Structure, Elizabeth Beise, Maria Goeppert-Mayer Award Recipient talk at DNP Prize Session, 1998 Joint Meeting of the APS and AAPT, Columbus, OH, April 18-21, 1998.

Experimental Status of the Electromagnetic Structure of the Deuteron, E. Beise for the JLAB  $t_{20}$  collaboration, 16th European Fewbody Conference, Autrans, FRANCE, June 1998.

Parity Violation and Nucleon Structure, E. Beise, New England Section of the APS Meeting, October 1998.

Strangeness form factors of the nucleon, Elizabeth Beise, APS Centennial Meeting, Atlanta, GA, March 20-26, 1999.

The electromagnetic structure of the deuteron, E. Beise, Gordon Conference on Fewbody Systems in Chemistry and Physics, Newport, RI, July 1999.

Parity violation in electron scattering, Bates 25th Anniversary Symposium, MIT, Cambridge, MA, November 1999.

Parity violation at the MIT-Bates Laboratory, APS Meeting, Long Beach, CA, April 29-May 2, 2000.

Parity violation and nucleon structure, CEU (Conference Experiences for Undergraduates) participants at APS-DNP Fall 2002 meeting.

Electron scattering and hadron structure, E. J. Beise, Conference on the Intersections Between Particle and Nuclear Physics, New York, NY, May 2003.

Parity violation with electrons and hadrons, E. J. Beise, 17th International IUPAP Conference on Few-Body Problems in Physics, Durham, NC, June 2003.

The axial form factor of the nucleon, E. J. Beise, International Workshop on Parity Violation and Hadronic Structure, Grenoble, France, June 2004.

News from electron scattering, E. J. Beise, International Nuclear Physics Conference, Goteburg, Sweden, June 2004.

Strangeness in the Nucleon, E. J. Beise, Invited talk at the Workshop on Advances in Understanding the Nucleon, Division of Nuclear Physics Fall meeting, Chicago, IL, October 2004.

## 2. Colloquia, seminars, and special lectures

Good resolution ( $\gamma, n$ ) measurements at medium energy, seminar, California Institute of Technology, Pasadena, CA, March 1988.

Good resolution ( $\gamma, n$ ) measurements at medium energy, seminar, Rensselaer Polytechnic Institute, Troy, NY, March 1988.

A recoil proton spectrometer for medium energy ( $\gamma, n$ ) measurements, seminar, Indiana University Cyclotron Facility, Bloomington, IN, February 1989.

A recoil proton spectrometer for medium energy ( $\gamma, n$ ) measurements, seminar, Argonne National Laboratory, Argonne, IL, February 1989.

A recoil proton spectrometer for medium energy ( $\gamma, n$ ) measurements, seminar, University of Massachusetts, Amherst, MA, March 1989.

A recoil proton spectrometer for medium energy ( $\gamma, n$ ) measurements, seminar, CEBAF, Newport News, VA, June 1990.

Probing the nucleon with electron scattering, seminar, Carleton College, Northfield, MN, April 1990.

Neutral weak form factors of the proton, colloquium, University of New Hampshire, Durham, NM, October 1990.

Neutral weak form factors of the proton, seminar, University of California at Los Angeles, Los Angeles, CA, December 1990.

Neutral weak form factors of the proton, lunch time talk, Bates Laboratory, Middleton, MA, February 1991.

Probing the structure of the neutron with polarized  $^3\text{He}$ , seminar, University of Colorado, Boulder, CO, May 1991.

Parity violation and strangeness in the proton, colloquium, California State University, Los Angeles, CA, February 1992.

Parity violation and strangeness in the proton, seminar, University of Maryland, College Park, MD, February 1992.

Parity violation and strangeness in the proton, seminar, Rensselaer Polytechnic Institute, Troy, NY, February 1992.

Parity violation and strangeness in the proton, colloquium, California State University, Long Beach, CA, March 1992.

Parity violation and strangeness in the proton, seminar, Ohio State University, Columbus, OH, April 1992.

Parity violation and strangeness in the proton, seminar, Carnegie Mellon University, Pittsburgh, PA, April 1992.

Parity violation and strangeness in the proton, seminar, Lawrence Livermore National Lab, Livermore, CA, April 1992.

Parity violation and strangeness in the proton, colloquium, Arizona State University, Tempe, AZ, September 1992.

Parity violation and strangeness in the proton, colloquium, Harvey Mudd College, Claremont, CA, October 1992.

Strange currents in the proton, colloquium, Argonne National Lab, Argonne, IL, November 1992.

Probing the nucleon with electron scattering, special seminar, Lake Forest College, Lake Forest, IL, November 1992.

Parity violation and strangeness in the proton, seminar, University of Washington, Seattle, WA, April 1993.

Parity violation and strangeness in the proton, seminar, George Washington University, Washington, DC, November 1993.

Parity violation and strangeness in the proton, graduate seminar, University of Maryland, Spring 1994.

Neutral currents and strange quarks in the proton, seminar, SUNY Stonybrook, NY, April 1995.

Neutral currents and strange quarks in the proton, seminar, Service de Physique Nucléaire, CEN-Saclay, France, June 1995.

Probing the nucleon with electron scattering, High School Teacher's Day lecture, APS-DNP Meeting, Bloomington, IN, September 1995.

Neutral currents and strange quarks in the proton, seminar, University of Maryland, October 1995.

Neutral currents and strange quarks in the proton, seminar, Rutgers University, October 1995.

Strange quarks in the proton, colloquium, Temple University, November 1995.

Strange quarks in the proton, colloquium, Villanova University, November 1995.

Strange quarks in the proton, colloquium, Harvard University, April 1996.

Lectures on parity violating electron scattering, Hampton University Graduate School on Nuclear Physics, June 1996.

Strange quarks in the proton, colloquium, University of Maryland, October 1996.

Probing the nucleon with electron scattering, colloquium, Texas Tech University, March 1997.

Probing the nucleon with electron scattering, seminar, NIST, October 1997.

Probing the nucleon with electron scattering, seminar, UMd Graduate Student Frontiers and Foundations in Physics, October 1997.



First results from the JLAB  $t_{20}$  experiment, seminar, Institute of Nuclear Theory, University of Washington, Seattle, December 1997.

Parity violation and strangeness in the proton, seminar, Institut des Sciences Nucléaires, Grenoble, France, February 1998.

Early results from the JLAB  $t_{20}$  experiment, seminar, Kellogg Radiation Lab, Caltech, February 1998.

Probing the nucleon with electron scattering, seminar, UMd Graduate Student Frontiers and Foundations in Physics, October 1998.

First results from JLAB, colloquium, Indiana University, October 1998.

The JLAB experiment scheduling procedure: from proposal to publication, JLAB special lecture, October 1998.

The EM structure of the deuteron, seminar, North Carolina State University, November 1998.

Probing the nucleon with electron scattering, SPS seminar, UMBC, November 1998.

Probing the nucleon with electron scattering, colloquium, University of Kentucky, December 1998.

The electromagnetic structure of the deuteron, colloquium, Argonne National Laboratory, March 1999.

Probing the nucleon with electron scattering, colloquium, Ohio University, April 1999.

Parity violation and strange quarks, colloquium, Boston University, October 1999.

Parity violation and strange quarks, 5-college colloquium, sponsored by University of Massachusetts at Amherst, October 1999.

Parity violating electron scattering, BATES 25 Symposium, MIT, November 1999.

The SAMPLE experiment, seminar, Jefferson Laboratory, December 1999.

Parity violation and strange quarks in the proton, Colloquium, College of William and Mary, December 2000.

Probing the nucleon with electron scattering, Foundations and Frontiers Seminar, University of Maryland, April 2001.

Probing the nucleon with electron scattering, Foundations and Frontiers Seminar, Colloquium, University of Maryland, October 2001.

Probing the nucleon with electron scattering, Foundations and Frontiers Seminar, Colloquium, University of Arizona, November 2001.

Parity Violation and Hadron Structure, Los Alamos National Laboratory, Seminar, February 2003 (invited as Distinguished Visitor to Physics Division).

Probing the nucleon with electron scattering, Colloquium, Bryn Mawr College, April 2003.

Parity Violation and Hadron Structure, Ohio State University, Seminar, September 2003.

Parity violation and strange quarks in the proton, Colloquium, Carnegie Mellon University, January 2004.

Strange and not so strange things about the proton, Seminar, "Frontiers in Physics", University of Maryland, March 2004.

Parity violation and hadron structure, Seminar, University of Maryland, April 2004.

Strange and not so strange things about the proton, Colloquium, Arizona State University, October 2004.

### 3. Contributed papers

A Møller polarimeter at MIT-Bates, T. G. O'Neill, B. W. Filippone, E. J. Beise, K. A. Dow, J. D. Zumbro, W. W. Sapp, and W. R. Dodge, *Bull. Am. Phys. Soc.* **34**, 1798 (1989).

The SAMPLE experiment, E. J. Beise, *Particles and Nuclei International Conference (PANIC)*, MIT, Boston, MA, June 1990.

Measurement of inclusive quasielastic scattering of polarized electrons from polarized  $^3\text{He}$ , W. Lorenzon, E. Beise, E. Belz, R. Carr, B. Filippone, R. McKeown, B. Mueller, T. O'Neill, C. Woodward, G. Dodson, K. Dow, M. Farkhondeh, S. Kowalski, K. Lee, N. Makins, R. Milner, A. Thompson, D. Tieger, J. van den Brand, A. Young, X. Yu, and J. Zumbro, *Bull. Am. Phys. Soc.* **35**, 1679 (1990).

Parity-violation and strangeness in the proton, E. J. Beise, *Gordon Conference on QCD in Nuclear Physics*, Tilton, NH, August 1991.

Quasielastic  $\text{Fe}(e, e'p)$  at high momentum transfer, T. G. O'Neill for the NE-18 collaboration, *Bull. Am. Phys. Soc.* **37**, 1314 (1992).

Photodisintegration of the deuteron up to 4.2 GeV, J. E. Belz for the NE-17 collaboration, *Bull. Am. Phys. Soc.* **37**, 1314 (1992).

The quasielastic  $^2\text{H}(e, e'p)$  and  $^{12}\text{C}(e, e'p)$  reactions at large momentum transfer, N. C. R. Makins for the NE-18 collaboration, *Bull. Am. Phys. Soc.* **37**, 1315 (1992).

Measurements of quasi-free pion single charge exchange (SCX) in  $^3\text{He}$  at  $T_\pi = 245$  MeV, M. L. Dowell, E. J. Beise, G. W. Dodson, S. Gilad, S. Høibråten, L. D. Pham, R. P. Redwine, D. R. Tieger, E. Piazzetsky, S. A. Wood, F. Irom, M. J. Leitch, G. S. Kyle, S. H. Rokni, and L. C. Smith, *Bull. Am. Phys. Soc.* **38**, 1816 (1993).

Quasielastic  $\text{A}(e, e')$  at high momentum transfer, J. Arrington for the NE-18 Collaboration, *Bull. Am. Phys. Soc.* **38**, 1821 (1993).

Quasielastic  $\text{A}(e, e'p)$  at high momentum transfer, T. G. O'Neill for the NE-18 Collaboration, *Bull. Am. Phys. Soc.* **38**, 1821 (1993).

Measurement of the spin-dependent transverse-longitudinal asymmetry  $A_{TL'}$  in  $^3\text{He}(\vec{e}, e')$  quasielastic scattering, J.-O. Hansen for the Bates 88-25 Collaboration, *Bull. Am. Phys. Soc.* **38**, 1821 (1993).

Measurement of the spin-dependent transverse-longitudinal asymmetry  $A_{T'}$  in  $^3\text{He}(\vec{e}, e')$  quasielastic scattering, H. Gao for the Bates 88-25 Collaboration, *Bull. Am. Phys. Soc.* **38**, 1821 (1993).

Momentum distributions from quasielastic  $(e, e')$  and  $(e, e'p)$  scattering at large momentum transfer, N. C. R. Makins for the NE18 Collaboration, *Bull. Am. Phys. Soc.* **38**, 1822 (1993).

Beam polarization measurements at MIT-Bates using a Moeller polarimeter, A. Lung for the 88-25 Collaboration, *Bull. Am. Phys. Soc.* **38**, 1836 (1993).

A high power liquid hydrogen target for parity violating electron scattering, E. Beise for the SAMPLE Collaboration, *Bull. Am. Phys. Soc.* **40**, 1008 (1995).

Momentum transfer dependence of the  ${}^1\text{H}(e, e'K^+)\Lambda$  cross sections, Gabriel Niculescu for the TJNAF E93-018 Collaboration, Bull. Am. Phys. Soc. **42**, 979 (1996).

$Q^2$  dependence of the ratio of  $\Lambda$  to  $\Sigma^0$  final states in  $\text{H}(e, e'K^+)\text{Y}$ , Richard M. Mohring for the TJNAF E93-018 Collaboration, Bull. Am. Phys. Soc. **42**, 979 (1996).

Results of density studies of the TJNAF Hall C cryotarget, K. Gustafsson for the TJNAF Hall C Collaboration, Bull. Am. Phys. Soc. **42**, 1043 (1996).

The Hall A Cryo-target at Jefferson Laboratory, Lars Ewell for the TJNAF Hall A Collaboration, Bull. Am. Phys. Soc. **42**, 1043 (1996).

Results from the SAMPLE experiment at MIT-Bates, E. J. Beise, Bull. Am. Phys. Soc. **42**, 1666 (1997).

Tensor polarization in elastic electron-deuteron scattering to the highest possible momentum transfers, M. Garçon, D. Abbott, A. Ahmidouch, H. Anklin, J. Arvieux, J. Ball, S. Beedoe, E. J. Beise, L. Bimbot, W. Boeglin, H. Breuer, R. Carlini, N. S. Chant, S. Danagoulian, K. Dow, J.-E. Ducret, J. Dunne, L. Ewell, L. Eyraud, C. Furget, R. Gilman, C. Glashausser, P. Gueye, K. Gustafsson, K. Hafidi, A. Honegger, J. Jourdan, S. Kox, G. Kumbartzki, L. Lu, A. Lung, D. Mack, P. Markowitz, J. McIntyre, D. Meekins, F. Merchez, J. Mitchell, S. Mtingwa, H. Mrktchyan, D. Pitz, L. Qin, R. Ransome, J.-S. Réal, P. G. Roos, P. Rutt, W. Schmidt, R. Sawafta, S. Stepanyan, E. J. Stephenson, R. Tieulent, E. Tomasi-Gustafsson, W. Turchinets, K. Vansyoc, J. Volmer, E. Voutier, W. Vulcan, C. Williamson, S. A. Wood, C. Yan, J. Zhao, and W. Zhao (The  $t_{20}$  collaboration), INPC98, Paris, France, 24-28 August 1998.

First observation of coherent threshold  $\pi^0$  electroproduction on the deuteron at large  $k^2$ , E. Tomasi-Gustafsson, D. Abbott, A. Ahmidouch, H. Anklin, J. Arvieux, J. Ball, S. Beedoe, E. J. Beise, L. Bimbot, W. Boeglin, H. Breuer, R. Carlini, N. S. Chant, S. Danagoulian, K. Dow, J.-E. Ducret, J. Dunne, L. Ewell, L. Eyraud, C. Furget, M. Garçon, R. Gilman, C. Glashausser, P. Gueye, K. Gustafsson, K. Hafidi, A. Honegger, J. Jourdan, S. Kox, G. Kumbartzki, L. Lu, A. Lung, D. Mack, P. Markowitz, J. McIntyre, D. Meekins, F. Merchez, J. Mitchell, S. Mtingwa, H. Mrktchyan, D. Pitz, L. Qin, R. Ransome, J.-S. Réal, P. G. Roos, P. Rutt, W. Schmidt, R. Sawafta, S. Stepanyan, E. J. Stephenson, R. Tieulent, W. Turchinets, K. Vansyoc, J. Volmer, E. Voutier, W. Vulcan, C. Williamson, S. A. Wood, C. Yan, J. Zhao, W. Zhao, and M. P. Rekalo (The  $t_{20}$  collaboration), INPC98, Paris, France, 24-28 August 1998.

Measurements of the tensor moments  $t_{20}$ ,  $t_{21}$ , and  $t_{22}$  in the momentum transfer range of  $4.1 \text{ fm}^{-1}$  to  $6.8 \text{ fm}^{-1}$  in elastic electron deuteron scattering, Kenneth Gustafsson for the JLAB  $t_{20}$  Collaboration, submitted to the Centennial Meeting of the APS in Atlanta, GA, April 20-26, 1999.

Recent results from the SAMPLE experiment, Damon T. Spayde for the SAMPLE Collaboration, Bull. Am. Phys. Soc. **44**, 33 (1999).

Measurement of the electric form factors of the deuteron between  $0.66$  and  $1.8 \text{ (GeV/c)}^2$ , Jean-Sebastien Rél for the Jefferson Lab  $t_{20}$  Collaboration, INFN Workshop on the Structure of the Nucleon, Trieste, Italy, May 1999.

Measurement of tensor polarization in elastic electron-deuteron scattering, K. Hafidi for Jefferson Lab  $t_{20}$  Collaboration, PANIC (Particles and Nuclei International Conference), Uppsala, Sweden, June 1999.

Monte Carlo studies for helium experiments in Hall A at JLab, T. Horn, B. Beise, and G. Chang, Bull. Am. Phys. Soc. **45**, 22 (2000).

Measurement of the low energy neutral current interaction with the deuteron at backward scattering angles, Richard Hasty for the SAMPLE Collaboration, Bull. Am. Phys. Soc. **45**, 49 (2000).

Quasifree electroproduction of hyperons on nuclei, Joerg Reinhold for E91-016 Collaboration, Bull. Am. Phys. Soc. **46**, 57 (2001).

Electroproduction of strangeness on light nuclei, F. Dohrmann for E91-016 Collaboration, Bull. Am. Phys. Soc. **46**, 57 (2001).

Parity-violating quasielastic electron scattering on deuterium at 125 MeV, Takeyasu Ito for the SAMPLE Collaboration, Bull. Am. Phys. Soc. **46**, 91 (2001)

Measuring the neutral weak form factors in e-N scattering: the  $G^0$  Experiment, Paul King for the G0 Collaboration, Bull. Am. Phys. Soc. **46**, 91 (2001).

The experimental technique of the  $G^0$  measurement, Julie Roche for the G0 Collaboration, Bull. Am. Phys. Soc. **46**, 91 (2001).

Elementary amplitudes in kaon electroproduction, Oliver K. Baker for E91-016 Collaboration, Bull. Am. Phys. Soc. **46**, 134 (2001).

Probing the  $N \rightarrow \Delta$  transition via measurements of the polarization responses in the  $p(\vec{e}, e'\vec{p})\pi^0$  reaction, A. J. Sarty for the Jefferson Lab Hall A Collaboration E91011, Bull. Am. Phys. Soc. **47**, 197 (2002).

Monitoring helicity correlated beam properties in the CEBAF injector, Jeff Secrest for the G0 Collaboration, Bull. Am. Phys. Soc. **48**, 114 (2003).

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## G. Contracts, grants, and proposals

Co-Principal Investigator: National Science Foundation Grant PHY-8914714 (Hydrogen Target and Cerenkov Detectors for Parity-Violation Experiments; Caltech) (July 1990-June 1992; \$640,000) with R. McKeown.

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Co-Principal Investigator: REU Supplement to NSF Grant PHY-9220690 (Research Experiences for Undergraduates) for Experimental Nuclear Physics Research Program (\$4,000 for 1993; \$4,000 for 1994; \$4,000 for 1995), P. G. Roos, N. S. Chant, C. C. Chang, H. Breuer, H. D. Holmgren, E. J. Beise, and J. J. Kelly.

Co-Principal Investigator: Supplement to NSF Grant PHY-9229690 (Career Advancement Award/Beise) for Experimental Nuclear Physics Research Program (\$50,000 for 1993-95), P. G. Roos, N. S. Chant, C. C. Chang, H. Breuer, E. J. Beise, and J. J. Kelly.

Principal Investigator: CEBAF Grant 94 P4986, Fabrication and Delivery of One (1) Cryogenic Target Vacuum Tank Lid (\$5,450 for 1994).

NSF Young Investigator Award, 1994-99 (\$231,377).

Co-Principal Investigator: National Science Foundation Grant PHY-9513924 (Experimental Nuclear Physics Research Program, 1996-1998) (\$650,000 for 1996; \$600,000 for 1997; \$600,000 for 1998), E. J. Beise, P. G. Roos, C. C. Chang, N. S. Chant, H. Breuer, and J. J. Kelly.

REU Supplement to NSF Grant PHY-9513924 (Research Experiences for Undergraduates) for Experimental Nuclear Physics Research Program (\$4,000 for 1996), N. S. Chant, E. J. Beise, C. C. Chang, H. Breuer, J. J. Kelly, and P. G. Roos.

Co-Principal Investigator: NSF International Programs Grant INT-9603224 (Electromagnetic Structure of the Deuteron) (\$15,000 for 1997-99), E. J. Beise and R. Gilman (Rutgers U.).

Principal Investigator: University of Illinois at Urbana-Champaign Grant for Construction of Target Control System, 1998-2000 (\$50,000).

Co-Principal Investigator: National Science Foundation Grant 9971819 (Experimental Nuclear Physics Research Program, 1999-2002 (\$1,907,346), N. S. Chant, E. J. Beise, H. Breuer, C. C. Chang, J. J. Kelly, and P. G. Roos.

REU Supplement to NSF Grant PHY-9971819 (Research Experiences for Undergraduates) for Experimental Nuclear Physics Research Program (\$31,000), N. S. Chant, E. J. Beise, C. C. Chang, H. Breuer, J. J. Kelly, and P. G. Roos.

Co-Principal Investigator: National Science Foundation Grant PHY-0140010, Experimental Nuclear Physics Research Program, 2002-05 (\$1,541,667), P. G. Roos, E. J. Beise, H. Breuer, C. C. Chang, and J. J. Kelly.

REU Supplement to NSF Grant PHY-0140010 (Research Experiences for Undergraduates) for Experimental Nuclear Physics Research Program (\$11,000), P. G. Roos, E. J. Beise, C. C. Chang, H. Breuer, J. J. Kelly.

Co-Principal Investigator: National Science Foundation Proposal 0456476, Experimental Nuclear Physics Research Program, 2005-2008 (\$1,706,377), P. G. Roos, H. Breuer, C. C. Chang, J. J. Kelly, and E. J. Beise.

Courses Taught at the University of Maryland

1994	Spring	Physics 161H	General Physics - Discussion	(3)
	Summer	Physics 798	Special Problems in Advanced Physics	(2)
1994	Fall	Physics 161	Mechanics and Particle Dynamics	(3)
1995	Spring	Physics 262	Vibrations, Waves, Heat, Electricity...	(4)
	Summer	Physics 899	Doctoral Dissertation Research	(2)
1995	Fall	Physics 161	Mechanics and Particle Dynamics	(3)
		Physics 798	Special Problems in Advanced Physics	(3)
		Physics 899	Doctoral Dissertation Research	(2)
1996	Spring	Physics 262	Vibrations, Waves, Heat, and Electricity...	(4)
		Physics 899	Doctoral Dissertation Research	(6)
	Summer	Physics 899	Doctoral Dissertation Research	(1)
1996	Fall	Physics 161	Mechanics and Particle Dynamics	(3)
		Physics 899	Doctoral Dissertation Research	(6)
1997	Spring	Physics 262	Vibrations, Waves, Heat, and Electricity...	(4)
		Physics 899	Doctoral Dissertation Research	(6)
	Summer	Physics 899	Doctoral Dissertation Research	(4)
1997	Fall	Faculty Research Grant		
		Physics 899	Doctoral Dissertation Research	(4)
1998	Spring	Physics 395	Advanced Experiments	(3)
		Physics 899	Doctoral Dissertation Research	(4)
		Physics 798C	Independent Study	(3)
	Summer	Physics 899	Doctoral Dissertation Research	(6)
1998	Fall	Physics 899	Doctoral Dissertation Research	(6)
1999	Spring	Physics 405	Advanced Experiments	(3)
		Physics 899	Doctoral Dissertation Research	(6)
	Summer	Physics 899	Doctoral Dissertation Research	(6)
1999	Fall	Physics 115	Inquiry Physics	(4)
		Physics 899	Doctoral Dissertation Research	(6)
2000	Spring	Physics 405	Advanced Experiments	(3)
		Physics 899	Doctoral Dissertation Research	(4)



Courses Taught at the University of Maryland

2000	Fall	Sabbatical		
		Physics 899	Doctoral Dissertation Research	(2)
		Physics 499	Undergraduate Research	(7)
2001	Spring	Physics 275	Experimental Physics I: Mechanics, Heat and Fields	(2)
		Physics 899	Doctoral Dissertation Research	(3)
2001	Fall	Physics 276	Experimental Physics II: Electricity and Magnetism	(2)
		Physics 899	Doctoral Dissertation Research	(3)
2002	Spring	Physics 275	Experimental Physics I: Mechanics, Heat and Fields	(2)
		Physics 899	Doctoral Dissertation Research	(2)
2002	Fall	Physics 276	Experimental Physics II	(2)
		Physics 899	Doctoral Dissertation Research	(3)
		Physics 748	Nuclear Physics Seminar	(1)
2003	Spring	Physics 275	Mechanics Lab	(2)
		Physics 899	Graduate Research	(3)
	Summer	Physics 899	Graduate Research	(4)
2003	Fall	Physics 276	Experimental Physics II	(2)
		Physics 899	Graduate Research	(6)
		Physics 748	Nuclear Physics Seminar	(1)
2004	Spring	Physics 171	Introductory Physics (Majors)	(4)
		Physics 899	Graduate Research	(7)
		Physics 748	Nuclear Physics Seminar	(1)
	Summer	Physics 899	Graduate Research	(4)
2004	Fall	Physics 174	Introductory Physics Lab	(1)
		Physics 899	Graduate Research	(7)
		Physics 748	Nuclear Physics Seminar	(1)
2005	Spring	Physics 899	Graduate Research	(7)
	Summer	Physics 899	Graduate Research	(4)
2005	Fall	Physics 174	Introductory Physics Lab	(1)
		Physics 899	Graduate Research	(7)
		Physics 748	Nuclear Physics Seminar	(1)

*Elizabeth J. Beise*

Departmental Service at the University of Maryland

- 1993-94 Member, Physics Council
- 1994-95 Member, Physics Council  
Physics Council Executive Committee  
Physics Graduate Student Advisor  
Campus Senate, College Council
- 1995-96 Member, Physics Council  
Physics Council Executive Board  
Physics Faculty Salary Advisory Committee  
Physics Graduate Student Advisor  
Physics Qualifying Examination Committee  
Campus Senate, College Council
- 1996-97 Member, Physics Council  
Physics Faculty Salary Advisory Committee  
Physics Graduate Student Advisor  
Physics Qualifying Examination Committee  
Physics Undergraduate Advisor  
Campus Senate, College Council  
"Advise-5" Advisor for Letters & Sciences Students
- 1997-98 Expanded Qualifying Examination Committee  
Physics Graduate Advisor  
Physics Undergraduate Advisor  
Physics Laboratory Committee
- 1998-99 Physics Appointment, Promotion, and Tenure Committee  
Physics Graduate Advisor  
Physics Undergraduate Advisor  
Physics Laboratory Committee
- 1999-00 Physics Appointment, Promotion, and Tenure Committee  
Physics Council  
Physics Graduate Advisor  
Physics Committee on Community Service  
Physics Laboratory Committee

- 2000-01 Sabbatical (Fall 2000)  
 Physics Council  
 Physics Computing Committee  
 Physics EEEEO Officer  
 Physics Qualifying Exam Committee  
 Physics Community and High Schools Liaison Subcommittee  
 Chair, Physics Open House Subcommittee  
 Physics Majors' Laboratory Subcommittee
- 2001-02 Physics Appointments, Promotions, and Tenure Review Committee  
 Physics EEEEO Officer  
 Physics Community and High Schools Liaison Subcommittee  
 Chair, Physics Open House Subcommittee  
 Physics Majors' Laboratory Subcommittee  
 Campus Programs, Courses, and Curricula Committee(PCC)
- 2002-03 Physics Open House Committee  
 Physics Community and High Schools Liaison  
 Physics Majors Lab Committee  
 Physics EEEEO Officer  
 Undergraduate Advisor both departmental and L+S  
 Campus Senate  
 Campus Programs, Courses, and Curricula Committee (PCC, Spring 2003)
- 2003-04 GRE Mechanics Review session, Fall 2003  
 Organizer of Physics Undergraduate Open House  
 Physics Community and High Schools Liaison  
 Physics Majors Lab committee  
 Undergraduate Education Committee  
 Undergraduate Advisor both departmental and L+S  
 Graduate Advisor Fall 2003  
 Department EEOC officer  
 Campus Senate  
 Campus Educational Affairs Committee  
 Chair, Campus Senate CORE Committee  
 RISE Advisory Board (grant program via College of Engineering), 2001-2004  
 Physics Community and High Schools Liaison  
 Physics Dept. Internal Review Committee
- 2004-05 (on leave at the National Science Foundation, Spring 2005)  
 Chair, Campus Senate CORE Committee  
 Physics Majors Lab committee  
 Undergraduate Education Committee  
 Undergraduate Advisor