

Mark B. Schneider

Professor of Physics

Grinnell College

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Curriculum Vitae—July 2015

EDUCATION

Ph.D. in Physics, Princeton University, 1983.

M.A. in Physics, Princeton University, 1979.

B.A. in Physics, Carleton College, 1977.

- Magna cum Laude, with Distinction in Department and Comprehensive Exercise.
- Member of Phi Beta Kappa, Pi Mu Epsilon.
- Nominated to Sigma Xi and Mortar Board.

PROFESSIONAL EXPERIENCE

Associate Dean of the College, Grinnell College, 2011-2015.

Professor, Grinnell College, 2007-present.

Associate Professor, Grinnell College, 1991-2007.

Assistant Professor, Grinnell College, 1987-1991.

Visiting Scholar in Physics, Harvard University, January 1995-June 1995.

Scientist in Residence, Project Kaleidoscope, June 1994-Nov. 1994.

Lecturer, University of North Carolina, Chapel Hill, 1986-1987.

Visiting Assistant Professor and Visiting Research Associate, University of North Carolina and Triangle University Nuclear Laboratory, 1984-1986.

Research Scientist, Duke University, 1985-1987(summers).

Instructor, Princeton University, 1983-1984.

Attached Staff, Chalk River Nuclear Laboratory (Canada), 1983 (summer), 1984 (summer).

Research Associate, Princeton University, November 1982-February 1983.

Assistant in Instruction, Princeton University, 1981-1982; 1978-1979.

Assistant in Research, Princeton Cyclotron Laboratory, 1977-1982.

ADMINISTRATIVE EXPERIENCE

Major duties and accomplishments listed under each position. Many responsibilities have been assumed from predecessors, but new or dramatically changed initiatives I have led or co-led are in *blue italics*.

Associate Dean of the College, Grinnell College, 2011-2015.

- Organize and implement New Faculty Programming.
 - *Primary responsibility for two days of full-time activities.*
 - *Engages new faculty in various developmental workshops (from one hour to full week).*
- *Co-organizer of Faculty Mentoring Network.*
 - *Individual faculty mentors for all new faculty.*

- *Training for faculty mentors.*
- *Outreach to faculty following personnel reviews.*
- Allocate funds in response to requests to Academic Equipment Budget (\$250,000).
- Oversee Faculty Development programs and budgets (roughly \$100,000).
 - Dean's office member of Instructional Support Committee.
- *Co-creator and co-organizer of Faculty Development Fridays, a weekly series of lunchtime informal presentations and discussions for all faculty.*
- Oversee initiatives and budgets for blended and online learning pilot projects.
 - *Organized and hosted consortial workshop funded by competitive grant for faculty development around instructional technology.*
 - Facilitated support of online course in collaboration with Global Online Academy.
- Supervise academic support professionals and their programs.
 - Two instructional technologists.
 - Alternative Language Study Director.
 - Art Image Curator.
 - Liberal Arts in Prison Program Coordinator.
 - *First-year retention intervention post-baccalaureate fellow.*
 - Physics Technician.
 - Peace Studies Coordinator.
 - Previously (2011-14) supervised academic support laboratories.
 - Math Lab (one professional).
 - Writing Lab (one director with staff of four professionals).
 - Reading Lab (one professional).
 - Science Learning Center (one professional with one post-baccalaureate fellow).
- Assessment liaison for Dean's Office.
 - Chairs Assessment Committee.
 - Assists with departmental reviews.
 - Accreditation (HLC) liaison.
- *Co-developer and co-chair of Diversity Roundtable.*
- *Developed and leading a first-year retention intervention program (Partners in Education).*
- Chair of Committee on Academic Standing.
 - Academic honesty.
 - Decisions on academic standing, probation, suspension, dismissal, and readmission.
 - Respond to petitions for academic rule exceptions.
- Respond to needs and projects of Dean and President as requested.

Chair of the Faculty, Grinnell College, 2008-2010.

- Member of President's Cabinet.
- Serve on Executive Council (primary college planning body).
- Serve on Personnel Committee (interim, promotion, and tenure reviews).
- Ex-officio membership on all standing committees except Faculty Organization.
- Chair Faculty Salary Committee.
 - Total budget roughly \$20M with benefits.
 - Merit reviews of faculty on a triennial basis.
 - Attended to peer salary comparisons by rank.
- Serve on Campus Budget Committee (develops full non-salary operating budget).

- *Developed a new faculty mentoring program.*
- *Reform of staff policies.*
 - *Served on Staff Handbook revision committee.*
 - *Took lead on revision of progressive discipline policies.*
- *Served as Campus Ombudsman.*
- *Initiated series of informal faculty discussions in wake of campus controversy.*

Science Division Chair, Grinnell College, 2002-2004.

- Membership on Executive Council (primary college planning body).
- Served on Faculty Salary Committee.
 - *Developed and instituted major two-year reallocation of raises to advance lagging Assistant Professor salaries.*
 - *Organized and helped give presentations to faculty to explain salary system.*
- Chaired Science Division meetings.
- Served on Campus Strategic Planning Committee.
 - *Chaired subcommittee on Improving the Grinnell Experience.*
 - *Produced subcommittee report.*

Director, Grinnell Science Project, Grinnell College, 1992-2002; 2009-2011.

- *Founding Director (developed most activities for weeklong pre-orientation program).*
- Intensive planning, participation, and follow-up for annual pre-orientation.
- *Under external grants, oversaw curricular development projects and faculty release time.*
- *Significant increases in number of students of color and women majoring in science, especially in Physics.*
- Program recognized as exemplary by White House with award of NSF-PAESMEM.

Project Kaleidoscope Scientist in Residence, 1994.

- *Devised, planned, and coordinated first Faculty for the 21st Century meeting in Atlanta.*
- *Developed plans for continuing this network electronically.*

Physics Department Chair, Grinnell College, 1992-1994; 1998-2000.

- Faculty hiring, review, salary recommendations.

RESEARCH INTERESTS

Quantum nature of light

Diversity and endowment policies in higher education

Fundamental symmetries in nuclear and atomic physics

Experimental tests of weak interactions

Sources of polarized atoms, nuclei, and electrons

Active Projects:

- *Network Effects in Faculty Mentoring*
- *Two Photon Interference as an Indicator of the Measurement Process*
- *Simultaneous Demonstration of Wave and Particle Properties of Light*

COMPETITIVE FUNDING RECEIVED

Grinnell College Innovation Fund Grant: “Partners in Education: An Academic Recovery Program for First-Year Students,” \$126,117 (MBS as PI with J. Bagnoli, N. Brown, J. Stern, and J. Swartz), 2013-2016.

Associated Colleges of the Midwest/Mellon Faculty Career Enhancement (FaCE) grant: “Campus Connect,” \$11,200, to support an instructional technology faculty workshop that leverages ACM resources through internet-based technology, 2012-2013.

Iowa Science Foundation: “Quantum Identity of Photons: Anti-coincidence studies of two-photon interference,” \$4,930, 2005-2006.

NSF-ILI: “A Computational Physics Laboratory and Course,” \$20,616, 1995-1997.

NSF-ROA: Supplement to the grant of G. Gabrielse of Harvard University to support my sabbatical leave research in his group studying anti-matter trapping, \$24,300, awarded 1994.

NSF-CCD: “New Science Project,” \$148,683 (with A. Solow, C. Sullivan, and J. Swartz), 1994-1996.

NSF-ILI: “Redesign of the General Physics Laboratory Utilizing Computer Technology,” \$36,597 (with S. J. Heilig as PI, and R. R. Cadmus, W. B. Case, P. J. H. Tjossem, and D. V. Schroeder), 1992-1994.

Keck Foundation: “Laser and Modern Optics Facility,” \$200,000 (with P. J. H. Tjossem), 1991-1993.

NSF RUI: Supplement to Weak Interactions grant to support post-doctoral position for one month, \$4000, 1991-1991.

Harris Fellowship, Grinnell College: One year academic leave at full pay plus \$5000 for research expenses to study weak interactions in nuclear beta decay, 1991-1992. This work included beta-neutrino angular correlations and optical pumping of rare gas radioisotopes.

NSF ILI: “Laser and Modern Optics Facility for Teaching College Physics,” \$38,975 (with P. J. H. Tjossem), 1990-1992.

Clearpoint Systems, grant of Macintosh memory modules in support of electrocardiogram simulation project, 1990.

Apple CLAC Macintosh II grant, computer for development of teaching software (with R. R. Cadmus), 1989.

NSF RUI: “Weak Interaction Studies in Nuclear Beta Decay,” \$92,122, 1989-1993.

Iowa Science Foundation, \$5,000 for Nuclear Data Acquisition Equipment, 1988-1989.

PUBLICATIONS AND EXHIBITIONS

Books

Shaking Things Up, an analytical mechanics text, M. B. Schneider, self-published (2008) and used four times at Grinnell by two different faculty members.

Journal Articles

“Verification of the Quantum Nature of Light from an LED Using Anticoincidence at a Beamsplitter,” Mark B. Schneider and Claire P. Christensen, in final preparation for *Phys. Rev. A*.

“Help Struggling Students and You’ll Help Their Classmates, Too,” Mark B. Schneider, Diversity supplement to the *Chronicle of Higher Education*, May 27, 2014, <http://chronicle.com/article/Help-Struggling-Students-and/146711/>.

“Teaching Quantum Mechanics to First-Semester Physics Students,” Mark B. Schneider, *The Physics Teacher*, October 2010 pp. 484-486.

“Endowments Can Become Too Much of a Good Thing,” Mark B. Schneider, Endowment supplement to the *Chronicle of Higher Education* and the *Chronicle of Philanthropy*, June 1-2, 2006, pp. B18-19.

“Activity-Based Statistical Physics for First-Year Students,” Mark B. Schneider, *American Physical Society Forum on Education Newsletter* (Spring 2005), <http://units.aps.org/units/fed/newsletters/spring2005/index.cfm>.

“Discovery-based Gauss’s Law,” Mark B. Schneider, *American Journal of Physics*, vol. 72, pp. 1272-1275 (2004).

“A simple experiment for discussion of quantum interference and which-way measurement,” Mark B. Schneider and Indhira A. LaPuma, *American Journal of Physics*, vol. 70, pp. 266-271 (2002).

“Encouragement of Women Physics Majors at Grinnell College: A Case Study,” Mark B. Schneider, *The Physics Teacher*, vol 39, p. 280 (May 2001).

“Winter Break Research Projects for Underrepresented Students at Grinnell College,” M. B. Schneider and P. J. H. Tjossem, *CUR Newsletter* vol. XIII, no. 3, p. 40 (1993).

“Transverse and Longitudinal Polarized-neutron, Polarized-⁹³Nb scattering, and the Tensor Spin-spin Potential,” J. P. Soderstrum, C. R. Gould, D. G. Haase, N. R. Roberson, M. B. Schneider, and L. W. Seagondollar, *Phys. Rev. C* 45,326 (1992).

“A Microcomputer Based Multiparameter Nuclear Data Acquisition System,” M. B. Schneider and N. K. Gregory, *Nuclear Instruments and Methods in Physics Research* A290,613 (1990).

“Measurement of Parity Violation in the Photodisintegration of Deuterium and in the Production of Bremsstrahlung on Tantalum,” E. D. Earle, A. B. McDonald, S. H. Kidner, E. T. H. Clifford, J. J. Hill, G. H. Keech, T. E. Chupp, M. B. Schneider, [Workshop on Parity Violation in the Nucleon Nucleon Interaction, TRIUMF, Vancouver, B.C., May 1987], *Can. Jour. Phys.* 66,534 (1988).

“Limits on P - and P,T -violating Absorption of MeV Neutrons in ^{165}Ho ,” J. P. Soderstrum, C. R. Gould, D. G. Haase, L.W. Seagondollar, M. B. Schneider, and N. R. Roberson, *Phys. Rev.* C38,2424 (1988).

“Optically Pumped Tensor Polarized Deuterium Sources,” M. B. Schneider and T. B. Clegg, *Nucl. Instr. and Meth.* A254,630 (1987).

“Spin-spin potentials in $^{27}\text{Al}_{\text{pol}} + n_{\text{pol}}$ and the Nuclear Ramsauer Effect,” C. R. Gould, D. G. Haase, L. W. Seagondollar, J. P. Soderstrum, K. E. Nash, M. B. Schneider, N. R. Roberson, *Phys. Rev. Lett.* 57,2371 (1986).

“A Test of Time Reversal Symmetry in the β Decay of ^{19}Ne ,” A. L. Hallin, F. P. Calaprice, D. W. MacArthur, L. E. Piilonen, M. B. Schneider, D. F. Schreiber; *Phys. Rev. Lett.* 52,337 (1984).

“Limit on $\text{Im}(C_S C_A^*)$ from a Test of T Invariance in ^{19}Ne Beta Decay,” M. B. Schneider, F. P. Calaprice, A. L. Hallin, D. W. MacArthur, D. F. Schreiber; *Phys. Rev. Lett.* 51,1239 (1983).

“Nuclear Magnetic Moment of ^{19}Ne with Possible Applications to Other Radioactive Gas Isotopes,” D. W. MacArthur, F. P. Calaprice, A. L. Hallin, M. B. Schneider, D. F. Schreiber; *Phys. Rev.* C26,1753 (1982).

“Search for Finite Mass Neutrinos in the Decay $\pi^+ \rightarrow \mu^+ \nu_\mu$,” F. P. Calaprice, M. Green, R. Pollock, M. B. Schneider, D. F. Schreiber; *Phys. Lett.* 106B,175 (1981).

“Search for Axion Emission in the Decay of Excited States of $^{12}\text{C}^*$,” F. P. Calaprice, R. W. Dunford, R. T. Kouzes, M. Miller, A. Hallin, M. Schneider, D. Schreiber; *Phys. Rev.* D20,2708 (1979).

Exhibitions

“Earth, Water, and Sky: Recent Landscape and Nature Photographs,” by Mark Schneider, an exhibition of 36 fine art landscape and nature photographs, Grinnell Community Art Gallery, April 2011.

“Photography,” by Mark Schneider, an exhibition of 14 fine art landscape photographs, Grinnell Regional Medical Center gallery, February and March 2006.

“Photographs,” by Mark Schneider, an exhibition of 35 fine art landscape photographs, Grinnell Community Art Gallery, November 2005.

ACADEMIC CONFERENCE PAPERS - Invited or Peer Reviewed

“Network Effects in New Faculty Mentoring: It’s Not What You Know But Who You Know,” Heather Lobban-Viravong and Mark B. Schneider, accepted for 2015 Mentoring Conference, University of New Mexico Mentoring Institute, Albuquerque, October 2015.

“From Failure to Success: Using a Mentoring Community to Improve Undergraduate Habits,” Mark B. Schneider and Heather Lobban-Viravong, accepted for 2015 Mentoring Conference, University of New Mexico Mentoring Institute, Albuquerque, October 2015.

“From Tutoring to Mentoring: Supporting Underrepresented and Underprepared Students, and Why That’s Good for Everyone,” Mark B. Schneider, Annual Biomedical Research Conference for Minority Students, American Society for Microbiology, San Antonio, November 2014.

“Comparing Models of Faculty Mentoring: Internal and External, Term and Tenure-Track,” Heather Lobban-Viravong and Mark B. Schneider, 2014 Mentoring Conference, University of New Mexico Mentoring Institute, Albuquerque, October 2014.

“The Role of ‘Non-Classical’ Two-Photon Effects in Interference of Two Attenuated Laser Beams,” Mark B. Schneider, Proceedings of the 125th Annual Meeting of the Iowa Academy of Science, April 19, 2013.

“Improving Academic Performance, Retention, and Graduation Rates at a Highly Selective College,” Jim Swartz, Narren Brown, Mark Schneider, and Ann Gansemer-Topf, AAC&U Annual Meeting “The Quality of U.S. Degrees” Atlanta, January 25, 2013.

“Faculty Partnership in Orientation for Underrepresented Groups: The Grinnell Science Project (GSP),” Joyce M. Stern and Mark B. Schneider, ISPA (Iowa Student Personnel Association) Annual Conference, Grinnell, October 22, 2012.

“Comprehensive Changes to STEM Education: Reform to Better Serve the Underserved. The Grinnell Science Project,” Leslie Gregg-Jolly, Mark Schneider and Jim Swartz, AAC&U/PKAL joint meeting “Engaged STEM Learning: From Promising to Pervasive Practices” Miami, March 25, 2011.

“Faculty Partnership in Orientation for Underrepresented Groups,” Joyce M. Stern and Mark B. Schneider, NASPA (Student Affairs Administrators in Higher Education) Annual Conference, Chicago, March 9, 2010.

“The Grinnell Science Project,” Mark B. Schneider, ACM FaCE Project, Women in Science Networking Seminar, Coe College, March 4, 2006.

“Simple Experimental Realizations of Quantum Mysteries,” Mark B. Schneider, Gordon Research Conference, *Physics Research and Education: Quantum Mechanics*, Mount Holyoke College, South Hadley, MA, June 2002.

“An ECR Ionizer for an Atomic Beam Polarized Source...Will It Help?” T. B. Clegg, M. B. Schneider; Proceedings of the International Workshop on Polarized Sources and Targets, Montana, Switzerland, Jan. 13-17, 1986; *Helv. Phys. Acta* 59,533 (1986).

“Search for Finite Mass Neutrinos in the Decay $\pi^+ \rightarrow \mu^+ \nu_\mu$,” F. P. Calaprice, D. F. Schreiber, M. B. Schneider, M. Green, R. E. Pollock, *Neutrino '81*, vol. II, p. 57 (1981).

INVITED SEMINARS AND COLLOQUIA

“Japan’s Nuclear Crisis: Meltdown at Fukushima,” panelist with Wayne Moyer, Mariko Schimmel, and Tim Werner, Rosenfield Program event at Grinnell College, March 18, 2011.

“The Grinnell Science Project,” presentation with Jim Swartz at Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring award ceremony, Washington, DC, January 2011.

“Forbidden Glimpses; What does a photon do between emission and detection?” Physics Colloquium, University of Northern Iowa, March 25, 2009.

“Quantum Measurement, or Being in Two Places at the Same Time,” Bates College Physics Seminar, March 25, 2005.

“What is a Photon Anyway?” Carleton College Physics Seminar, October 22, 2003.

Keynote address, “New Faculty Workshop,” Pew Midstates Consortium, Grinnell College, June 9-11, 2000.

“Active Learning in Science Education: A Fad or a Fix?” with Clark Lindgren, Des Moines Area Sigma Xi, January 25, 2000.

“Workshop Physics: More Learning and Less Teaching,” Grinnell College Alumni (Reunion) College, June 1999.

“A Lab-Based Lecture-Free General Physics Course,” Project Kaleidoscope Workshop, *Undergraduate Physics Curricula: What Works and What Needs to Be Done*, University of Nebraska-Lincoln, September 1997.

“Making Slow Positrons,” Grinnell College, Grinnell, Iowa, September 1997

“Workshop Physics at Grinnell,” Grinnell College, Grinnell, Iowa, November 1996.

“The New Science Project,” Amherst College, Amherst, Massachusetts, April 1995.

“Designing our Futures: the First Meeting of the Faculty for the Twenty-first Century,” Atlanta, Georgia, October 1994. (I was the primary organizer of this meeting.)

“The New Science Project,” Project Kaleidoscope Workshop, *Introductory Courses*, Beloit College, Beloit, Wisconsin, August 1994.

“The New Science Project,” Project Kaleidoscope Workshop, *The Art and Craft of Reform*, College of the Holy Cross, Worcester, Massachusetts, June 1994.

“The New Science Project: Stimulating Curricular Reform in Introductory Science,” Edgewood College, Madison, Wisconsin, 1993.

“Workshop Physics at Grinnell,” Grinnell College, Grinnell Iowa, 1993.

“Fundamental Symmetries in Nuclear Physics: High Energy Physics at Low Energies,” Grinnell College, Grinnell Iowa, 1987.

“Delayed Proton Decay of ^{33}Ar : Probing the Weak Interaction,” University of Wisconsin, Madison, Wisconsin, 1987.

“Fundamental Symmetries in Nuclear Physics,” Amherst College, Amherst, Massachusetts, 1986.

“Fundamental Symmetries in Nuclear Physics: High Energy Physics at Low Energies,” Carleton College, Northfield, Minnesota, 1986.

“Delayed Proton Decay of ^{33}Ar : Searching for Weak Scalar Currents,” Triangle University Nuclear Laboratory, Durham, North Carolina, 1986.

ACADEMIC CONFERENCE PAPERS – Contributed (No Peer Review)

“Improving Student Learning through Collaboration,” Judy Hunter, Jean Ketter, Catherine Rod, Mark Schneider, Rebecca Stuhr, ACM Conference on Synergies for Student Learning, Carleton College, August 2, 2005.

“A Low-Energy-Positron Spectrometer,” Mark Schneider, Laura Frantz, Bridget Lavelle, Holly Maness, Meghan O’Connell, Erin Will, *Bulletin of the American Physical Society (BAPS)* vol. 47, no. 2, p 98 (2002).

“An Integrating Low-Energy Positron Spectrometer,” Mark Schneider, Sarah Hodges, Karmin Mauritz, Catherine Nisbett, and Meghan O’Connell, *BAPS* 44, 731 (1999).

“A Lab-Based, Lecture-Free General Physics Course,” Mark. B. Schneider, *BAPS* 42, 999, (1997).

“Modern Physics in a Calculus-based Introductory Physics Course,” M. B. Schneider, *BAPS* 38,1055 (1993).

“The Measurement of Nuclear Decay Recoil Through Doppler Shifts in Gamma Rays,” M. B. Schneider, A. S. Huesmann, and J. A. Patmon, BAPS 37,888 (1992).

“A Method of Measuring Diode Laser Tuning Curves,” K. A. Nassiff and M. B. Schneider, Pew Undergraduate Research Symposium in the Physical Sciences, Washington University, October 1990.

“The Measurement of Doppler Shifts in Gamma Rays Due to Nuclear Recoil Following Beta Decay,” M. B. Schneider, A. B. Craft, N. K. Gregory, K. A. Nassiff, and J. A. Patmon; BAPS 35,1672 (1990).

“Beta-Neutrino Angular Correlations in the Decay of ^{33}Ar ,” T. C. Spencer, H. J. Karwowski, and M. B. Schneider; International Conference on Weak and Electromagnetic Interactions in Nuclei, Montreal, May 1989.

“ β - ν Angular Correlations in the Decay of ^{33}Ar ,” T. C. Spencer, H. J. Karwowski, and M. B. Schneider; BAPS 33,1565 (1988).

“Search for Parity Violation in $^{165}\text{Ho}+n_{\text{pol}}$ and $\text{Ag}+n_{\text{pol}}$ at MeV Energies,” J. P. Soderstrom, C. R. Gould, D. G. Haase, L. W. Seagondollar, K. E. Nash, M. B. Schneider, and N. R. Roberson; BAPS 32,1019 (1987).

“Parity Violation in the Photodisintegration of Deuterium,” A. B. McDonald, E. D. Earle, S. H. Kidner, E. T. H. Clifford, J. J. Hill, M. B. Schneider, and T. C. Chupp; 7th International Symposium on High Energy Spin Physics, Protvino (USSR), 22-27 Sept. 1986.

“Measurement of the Spin-spin Cross-section for $^{27}\text{Al}_{\text{pol}}(n_{\text{pol}},n)^{27}\text{Al}$,” J. P. Soderstrom, C. R. Gould, D. G. Haase, L. W. Seagondollar, N. R. Roberson, K. Nash, M. Schneider; BAPS 31,1224 (1986).

“Argon Gas Handling System,” T. C. Spencer, H. J. Karwowski, and M. B. Schneider; BAPS 31,886 (1986).

“Feasibility of Optically Pumped Polarized Deuterium Ion Sources,” M. B. Schneider, T. B. Clegg; BAPS 30,791 (1985).

“A Test of T-Invariance in ^{19}Ne Beta Decay Sensitive to $\text{Im}(\text{C}_S\text{C}_A^*)$,” M. B. Schneider, F. P. Calaprice, A. L. Hallin, D. W. MacArthur, D. F. Schreiber; BAPS 28,659 (1983).

“Discussion of Several Simple Data Acquisition Systems Using the Apple Microcomputer,” D. F. Schreiber, A. L. Hallin, D. W. MacArthur, L. E. Piilonen, and M. B. Schneider; BAPS 27,524 (1982).

“An Improved Method for Measuring Nuclear Magnetic Moments of Radioactive Rare Gas Isotopes Applied to ^{19}Ne ,” D. W. MacArthur, F. P. Calaprice, A. L. Hallin, M. B. Schneider, D. F. Schreiber; BAPS 27,493 (1982).

“Depolarization Corrections to Beta Asymmetry Measurements on ^{19}Ne ,” D. F. Schreiber, F. P. Calaprice, A. L. Hallin, D. W. MacArthur, M. B. Schneider; BAPS 27,492 (1982).

“A Test of Time Reversal Invariance in the Beta Decay of ^{19}Ne ,” M. B. Schneider, F. P. Calaprice, A. L. Hallin, D. W. MacArthur, D. F. Schreiber; BAPS 27,492 (1982).

“New Observation of Nuclear Magnetic Resonance in ^{19}Ne ,” D. W. MacArthur, F. P. Calaprice, A. L. Hallin, M. B. Schneider, D. F. Schreiber; BAPS 25,485 (1980).

“Superconducting Focussing Magnets for Use in Neutral Atomic Beams,” M. B. Schneider, F. P. Calaprice; BAPS 25,485 (1980).

“An Adiabatic Fast Passage RF Spin Flipper for Nuclear Spins,” A. L. Hallin, F. P. Calaprice, R. W. Dunford, D. W. MacArthur, M. B. Schneider, D. F. Schreiber; BAPS 25,485 (1980).

“An Improved Test for Second Class Currents in the Beta Decay of ^{19}Ne ,” D. F. Schreiber, F. P. Calaprice, M. S. Dewey, A. L. Hallin, W. E. Kleppinger, D. Mueller, M. B. Schneider; BAPS 24,51 (1979).

“Search for Axion Emission in the Decay of Excited States of ^{12}C ,” R. W. Dunford, F. P. Calaprice, R. T. Kouzes, M. Miller, A. L. Hallin, M. B. Schneider, D. F. Schreiber; BAPS 24,52 (1979).

“A Search for Parity Violation in ^{20}Ne ,” R. T. Kouzes, P. J. Besl, F. P. Calaprice, D. Mueller, M. B. Schneider; BAPS 24,43 (1979).

WORKSHOP PARTICIPATION

“Blended Learning in the Liberal Arts,” Mellon sponsored workshop at Bryn Mawr College, May 2015 (also a planning meeting for consortial work on a FIPSE First in the World STEM grant to Bryn Mawr).

“Blended Learning in the Liberal Arts,” Mellon sponsored workshop at Bryn Mawr College, May 2014.

“Workshop for New Chief Academic Officers,” Council of Independent Colleges meeting, Pittsburgh, November 1, 2013.

“Campus Connect,” Associated Colleges of the Midwest workshop on collaborative instructional technology, Grinnell College, March 2013 (I was primary organizer of this workshop).

“New Faculty Workshop,” Pew Midstates Consortium, Grinnell College, June 9-11, 2000. I served as a mentor for this workshop.

“Teaching Introductory Physics Using Interactive Methods and Computers,” National Science Foundation, Dickinson College, June 1992.

“Laser Workshops for Undergraduate Faculty,” National Science Foundation, Lawrence University, Summer 1989.

“Undergraduate Physics Education,” Michigan State University, October 1989.

“Introductory University Physics Project,” American Institute of Physics, Carleton College, Summer 1988.

TEACHING EXPERIENCE

Introductory Physics
Modern Physics
Classical Mechanics
Advanced Electricity and Magnetism
Thermodynamics and Statistical Mechanics
Quantum Mechanics
Advanced Laboratory
Numerical Methods in Physics
Solid State Physics
Nuclear Physics

I have taught three freshman tutorials, and guest lectured on Nuclear Power in several courses. I have been the research advisor for about sixty students on research projects ranging from summer undergraduate internships to a PhD thesis. I have developed complete new curricular materials in both semesters of the introductory course in workshop format, in the classical mechanics course, and in computational physics.

SELECTED COLLEGE SERVICE AND COMMITTEE MEMBERSHIP

Committee or Campus Leadership

Chair of the Faculty (includes active membership on a dozen standing committees) 2008-2010.
Science Division Chair, 2002-2004.
Radiation Safety Officer, 1997-present.
Committee on Academic Standing, 2008-2010, chair 2011-2015.
Assessment Committee, co-chair 2011-present.
Instructional Support Committee, 2004-2006, chair 2005-2006, admin. liaison 2011-2015.
NCA Higher Learning Commission Liaison 2011-2015.
New/Grinnell Science Project Director 1992-2002, 2009-2011.
Faculty Salary Committee, 2002-2004, chair 2008-2010.
Physics Department Chair 1992-1994, 1998-2000.

Major Committees or Initiatives

Executive Council, 2002-2004, 2008-2010.
Personnel Committee, 1998-1999.
Staff Handbook Review Committee, 2010.
Campus Climate Assessment Committee, 2008-2010.
Strategic Planning Steering Committee, 2002-2004.
Curriculum Review (Interdisciplinary Senior Seminar) Committee, 1989-1990.
Presidential Search Committee, 1990-1991.
Faculty Organization Committee, 1998-1999.
New/Grinnell Science Project Director, 1992-2002, 2009-2011.

Other Committee Service

Ad Hoc Ombuds Committee, 2009-2010.
Campus Plan Update Committee, 2008-2010.
Search Committee for Associate Dean of Students, 2009.
Search Committee for Director of Admission, 2009.
Diversity Steering Committee, 2007-2008.
Science Division Personnel Committee, 2007-2008.
Copyright Review Committee, 2006-2007.
Burling Planning Committee, 2005-2006.
General Science Major Chair, 2007-2008.
Radiation Safety Committee, 1997-present.
Curriculum Committee, 2000-2001.
Rosenfield Program Committee, 1989-1991.
Honor Scholars Steering Committee, 1992-94.
Rhodes/Marshall Committee, 1995-1998.
Health Professions Advisory Committee, 1997-2001, 2004-2005.
Personnel Appeals Board, 1997-1998.
Wall Service Award Selection Committee, 2001, 2003-2004.

SERVICE TO ACADEMIC/SCIENTIFIC COMMUNITY

Outside review visits of physics departments

- Leader for outside review team at Muhlenberg College Spring 2014.
- Knox College (with David Reid of the University of Chicago), April 2011.
- Ithaca College, April 2010.
- College of St. Catherine, December 1993.

Member of selection committee for Associated Colleges of the Midwest (ACM) grant program Seminars in Advanced Interdisciplinary Learning (SAIL), 2013-present.

Member of selection committee for AAC&U/PKAL grant program Teaching to Increase Diversity and Equity in STEM (TIDES), Spring 2014.

Outside Reviewer for Tenure Case at Kalamazoo College, November 2012.

Participant in Congressional Roundtable on College and University Endowments, Washington, DC, September 8, 2008.

Alumni representative to Carleton College Physics Department Curricular Reform Retreat, September 2006.

Consultant to Carleton College's Science Scholar program, April 2006.

Keck/PKAL consultant for Physics and Geology Department, Northern Kentucky University, May 1997 and May 1998.

Member of Leadership Committee of Project Kaleidoscope, 1994-1995.

Facilitator of Science Division Retreat, University of Evansville, December 1994.

Project Team Member for Iowa State University Extension's Science Engineering and Technology Youth Initiative (E-SET, a K-12 outreach program), 1991-1996.

Participant in American Institute of Physics' Introductory University Physics Project (1988-89).

Referee for the American Journal of Physics, The Physics Teacher, Review of Scientific Instruments, and Physical Review Letters (since 1986, with regularity for the first two journals).

Reviewer for National Science Foundation DUE proposals, 1993 and 1997.

GRADUATE STUDENT THESES SUPERVISED

Duane Lee Rosenberg, MS 1987, University of North Carolina at Chapel Hill, “A Monte Carlo Simulation and a Beta Spectrometer: Aiding in a Study of the Beta-Delayed Proton Emission from Argon-33.”

Thomas Charles Spencer, PhD 1990, University of North Carolina at Chapel Hill, “Beta Neutrino Angular Correlations in the Decay of ^{33}Ar .” (Official advisor H. J. Karwowski, since I had departed from UNC before completion of this thesis, but I provided the genesis and leadership on this project.)

AWARDS

- Distinguished Iowa Science Teaching Award (Iowa Academy of Science 4/2001).
- Honorable Mention in Awards for Enhancing the First Year Experience, National Center for the First Year Experience, University of South Carolina (1/2001).

PROFESSIONAL SOCIETIES

- American Conference of Academic Deans
- American Physical Society (APS)
- APS Nuclear Physics Division
- APS Atomic, Molecular, and Optical Division
- APS Topical Group on Fundamental Constants and Precise Tests of Physical Laws
- APS Forum on Education
- American Association of Physics Teachers
- Iowa Academy of Science

SERVICE TO LOCAL COMMUNITY

- Member of the Board of Directors, Grinnell 2000 (A grass-roots community development organization), 1991-1994.
- Member of Energy Task Force, Grinnell 2000, 1991-1993.
- Frequent performances (averaging twice per month) in local folk music groups “Too Many String Band,” “New House,” “Cruiscin Lan,” and solo.