

Curriculum Vitae

Dr. Daniel Phillips

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Date of Birth: 19th April 1972

Education:

Undergraduate:

Flinders University of South Australia, Adelaide, Australia

Degree: B.Sc., December 1990
Major: Theoretical Physics
Awards: Earth Sciences Book Prize for best First Year student (1988)
SA Chamber of Commerce and Industry Prize for best 1st Year Science student overall (1988)
Chancellor's Letter of Commendation (1988)
Chancellor's Letter of Commendation (1989)
Silver Bragg Medal for best 3rd Year Physics student at Flinders (1990)
Chancellor's Letter of Commendation (1990)

Honours:

Flinders University of South Australia, Adelaide, Australia

Degree: B.Sc. (Hons.), December 1991
Field: Theoretical Physics
Advisor: Prof. R. T. Cahill
Thesis: "Deriving the Copenhagen Interpretation from the Schrödinger Equation"
Honors: University Medal for best Honours student in School of Physical Sciences
HECS Exemption Scholarship

Postgraduate:

Flinders University of South Australia, Adelaide, Australia

Degree: Ph. D., December 1995
Field: Theoretical Nuclear Physics
Advisor: Prof. I. R. Afnan
Thesis: "The Coupled-Channels Problem in Field Theory:
The $NN - \pi NN$ System"
Honors: Flinders University Overseas Travelling Fellowship
Amy Forwood Award
State Bank Travelling Award
HECS Exemption Scholarship

Professional Experience:

Theory Group for Quarks, Hadrons and Nuclei
Department of Physics
University of Maryland, College Park

Postdoctoral Research Associate, September 1995–August 1998

Nuclear Theory Group
Department of Physics
University of Washington, Seattle

Research Assistant Professor, August 1998–August 2000

Department of Physics and Astronomy
Ohio University, Athens 45701

Assistant Professor, August 2000–August 2004

Associate Professor, August 2004–

Honors:

Department of Energy Outstanding Junior Investigator, 2002–2005

Miura Visiting Professor, Chubu University, 2006

RESEARCH FUNDING

- “Hadronic and electromagnetic reactions as probes of nuclear dynamics”, co-PI with C. Elster and L. E. Wright, United States Department of Energy, \$473,000, November 1, 2001–October 31, 2004.
- “Few-nucleon systems in the laboratory, supernovae, and the cosmos”, United States Department of Energy Outstanding Junior Investigator Award, \$183,000, July 1, 2002–June 30, 2005.
- “Hadronic and electromagnetic reactions as probes of nuclear dynamics”, co-PI with C. Elster and L. E. Wright, United States Department of Energy, \$540,000, November 1, 2004–October 31, 2007.
- “Structure of the Universe from Quarks to Superclusters”, Ohio University University Research Priorities process, co-PI with eleven other Nuclear/Particle Physics and Astrophysics faculty, \$1,342,000, July 1, 2004–June 30 2009.
- Ohio University Post-doctoral Fellowship, for Lucas Platter, \$25,000.
- “Travel costs for 2004 Gordon Research Conference on Photonuclear Reactions”, National Science Foundation, \$5,500.

PUBLICATIONS, COLLOQUIA, SEMINARS AND CONFERENCES

Papers In Refereed Journals

1. THE CLASSIFICATION OF DIAGRAMS IN PERTURBATION THEORY, D. R. Phillips and I. R. Afnan, *Ann. Phys. (N.Y.)* **240** (1995) 266–314.
2. SOLVING THE FOUR-DIMENSIONAL $NN - \pi NN$ EQUATIONS FOR SCALARS BELOW MESON-PRODUCTION THRESHOLD, D. R. Phillips and I. R. Afnan, *Phys. Rev. C* **54** (1996), 1542–1560.
3. HOW SHORT IS TOO SHORT? CONSTRAINING ZERO-RANGE INTERACTIONS IN NUCLEON-NUCLEON SCATTERING, D. R. Phillips and T. D. Cohen, *Phys. Lett.* **B390** (1997), 7–12.
4. THE LOW-ENERGY INTERACTION OF COMPOSITE SPIN-HALF SYSTEMS WITH SCALAR AND VECTOR FIELDS, D. R. Phillips, M. C. Birse, and S. J. Wallace, *Phys. Rev. C* **55** (1997), 1937–1945.
5. SHORT-RANGE INTERACTIONS IN AN EFFECTIVE FIELD THEORY APPROACH FOR NUCLEON-NUCLEON SCATTERING, K. A. Scaldeferri, D. R. Phillips, C.-W. Kao, and T. D. Cohen, *Phys. Rev. C* **56** (1997), 679–688.
6. NON-PERTURBATIVE REGULARIZATION AND RENORMALIZATION: SIMPLE EXAMPLES FROM NON-RELATIVISTIC QUANTUM MECHANICS, D. R. Phillips, S. R. Beane, and T. D. Cohen, *Ann. Phys. (N.Y.)* **263**, 255 (1998).
7. A COVARIANT GAUGE-INVARIANT THREE-DIMENSIONAL DESCRIPTION OF RELATIVISTIC BOUND STATES, D. R. Phillips and S. J. Wallace, *Few Body Syst.* **24** (1998), 175–191.
8. THE POTENTIAL OF EFFECTIVE FIELD THEORY FOR NN SCATTERING, S. R. Beane, T. D. Cohen, and D. R. Phillips, *Nucl. Phys* **A632** (1998), 445–469.
9. ELECTRON DEUTERON SCATTERING IN A CURRENT CONSERVING DESCRIPTION OF RELATIVISTIC BOUND STATES: FORMALISM AND IMPULSE APPROXIMATION CALCULATIONS, D. R. Phillips, N. K. Devine, and S. J. Wallace, *Phys. Rev. C* **58** (1998), 2261–2282.
10. SCHEMING IN DIMENSIONAL REGULARIZATION, D. R. Phillips, S. R. Beane, and M. C. Birse, *J. Phys. A* **32**, 3397–3407 (1999).
11. COMPTON SCATTERING ON THE DEUTERON IN BARYON CHIRAL PERTURBATION THEORY, S. R. Beane, M. Malheiro, D. R. Phillips, and U. van Kolck, *Nucl. Phys.* **A656**, 367–399 (1999).
12. DEUTERON ELECTROMAGNETIC PROPERTIES AND THE VIABILITY OF EFFECTIVE FIELD THEORY METHODS IN THE TWO-NUCLEON SYSTEM, D. R. Phillips and T. D. Cohen, *Nucl. Phys.* **A668**, 45–82 (2000).

13. IMPROVING THE CONVERGENCE OF NN EFFECTIVE FIELD THEORY, D. R. Phillips, G. Rupak, M. J. Savage, Phys. Lett. **B473**, 209–218 (2000).
14. RESTORATION OF ROTATIONAL INVARIANCE OF BOUND STATES ON THE LIGHT FRONT, J. R. Cooke, G. A. Miller, D. R. Phillips, Phys. Rev. C **61**, 064005 (2000).
15. NUMERICAL RENORMALIZATION USING DIM REG: A SIMPLE TEST CASE IN THE LIPPMANN-SCHWINGER EQUATION, D. R. Phillips, I. R. Afnan, A. G. Henry-Edwards, Phys. Rev. C **61**, 044002 (2000).
16. NEUTRINO AND AXION EMISSIVITIES OF NEUTRON STARS FROM NUCLEON-NUCLEON SCATTERING DATA, C. Hanhart, D. R. Phillips, S. Reddy, Phys. Lett. B **499**, 9–15 (2001).
17. EXTRA DIMENSIONS, SN1987a, AND NUCLEON-NUCLEON SCATTERING DATA, C. Hanhart, D. R. Phillips, S. Reddy, M. J. Savage, Nucl. Phys. **B595**, 335–359 (2001).
18. FROM HADRONS TO NUCLEI: CROSSING THE BORDER, S. R. Beane, P. F. Bedaque, W. C. Haxton, D. R. Phillips, M. J. Savage, in “At the frontier of particle physics”, M. Shifman ed. (World Scientific, Singapore, 2001), pp. 133–269.
19. THE LIKELIHOOD OF GODS’ EXISTENCE: IMPROVING THE SN1987a CONSTRAINT ON THE SIZE OF LARGE COMPACT DIMENSIONS, C. H. Hanhart, J. A. Pons, D. R. Phillips, S. Reddy, Phys. Lett. B **509**, 1–9 (2001).
20. BUILDING LIGHT NUCLEI FROM NEUTRONS, PROTONS, AND PIONS, D. R. Phillips, Czech. J. Phys. **52**, B49–B101 (2002).
21. THE S-WAVE PION-NUCLEON SCATTERING LENGTHS FROM PIONIC ATOMS USING EFFECTIVE FIELD THEORY, S. R. Beane, V. Bernard, E. Epelbaum, U.-G. Meissner, D. R. Phillips, Nucl. Phys. **A720**, 399–415 (2003).
22. EFFECTIVE THEORY OF THE $\Delta(1232)$ IN COMPTON SCATTERING OFF THE NUCLEON, V. Pascalutsa, D. R. Phillips, Phys. Rev. C **67**, 055202 (2003).
23. HIGHER-ORDER CALCULATIONS OF ELECTRON DEUTERON SCATTERING IN NUCLEAR EFFECTIVE THEORY, D. R. Phillips, Phys. Lett. B **567**, 12–22 (2003).
24. NUCLEON POLARIZABILITIES FROM LOW-ENERGY COMPTON SCATTERING, S. R. Beane, M. Malheiro, J. A. McGovern, D. R. Phillips, U. van Kolck, Phys. Lett. B **567**, 200–206 (2003).
25. SUPERNOVAE AND LIGHT NEUTRALINOS: SN1987A BOUNDS ON SUPERSYMMETRY REVISITED, H. K. Dreiner, C. Hanhart, U. Langenfeld, D. R. Phillips, Phys. Rev. D **68**, 055004 (2003).

26. MODEL-INDEPENDENT EFFECTS OF DELTA EXCITATION IN NUCLEON SPIN POLARIZABILITIES, V. Pascalutsa, D. R. Phillips, Phys. Rev. C, **58**, 055205 (2003).
27. THE THREE-BODY PROBLEM WITH SHORT-RANGE FORCES: RENORMALIZED EQUATIONS AND REGULATOR-INDEPENDENT RESULTS. I. R. Afnan, D. R. Phillips, Phys. Rev. C **69**, 034010 (2004).
28. COMPTON SCATTERING ON THE PROTON, NEUTRON, AND DEUTERON IN CHIRAL PERTURBATION THEORY TO $O(Q^4)$. S. R. Beane, M. Malheiro, J. A. McGovern, D. R. Phillips and U. van Kolck, Nucl. Phys. **A747**, 311 (2005).
29. EXPLICIT DELTA(1232) DEGREES OF FREEDOM IN COMPTON SCATTERING OFF THE DEUTERON. R. P. Hildebrandt, H. W. Griebhammer, T. R. Hemmert and D. R. Phillips, Nucl. Phys. **A748**, 573 (2005).
30. PREDICTIONS FOR POLARIZED-BEAM/VECTOR-POLARIZED-TARGET OBSERVABLES IN ELASTIC COMPTON SCATTERING ON THE DEUTERON, D. Choudhury, D. R. Phillips, Phys. Rev. C **71**, 044002 (2005).
31. ELECTRON-DEUTERON SCATTERING IN THE EQUAL-TIME FORMALISM: BEYOND THE IMPULSE APPROXIMATION, D. R. Phillips, S. J. Wallace, N. K. Devine, Phys. Rev. C **72**, 014006 (2005).
32. CHIRAL PERTURBATION THEORY FOR ELECTROWEAK REACTIONS ON DEUTERIUM, D. R. Phillips, J. Phys. **G31**, S1263 (2005).
33. DELTA EFFECTS IN PION-NUCLEON SCATTERING AND THE STRENGTH OF THE TWO-PION-EXCHANGE THREE-NUCLEON INTERACTION, V. R. Pandharipande, D. R. Phillips, U. van Kolck, Phys. Rev. C **71**, 064002 (2006).
34. USING CHIRAL PERTURBATION THEORY TO EXTRACT THE NEUTRON-NEUTRON SCATTERING LENGTH FROM $\pi^-d \rightarrow nn\gamma$, A. Gärdestig, D. R. Phillips, Phys. Rev. C **73**, 014002 (2006).
35. THE NEAR-THRESHOLD $NN \rightarrow d\pi$ REACTION IN CHIRAL PERTURBATION THEORY, A. Gärdestig, D. R. Phillips, Ch. Elster, Phys. Rev. C **73**, 024002 (2006).
36. HOW LOW-ENERGY WEAK REACTIONS CAN CONSTRAIN THREE-NUCLEON FORCES AND THE NEUTRON-NEUTRON SCATTERING LENGTH, A. Gärdestig, D. R. Phillips, Phys. Rev. Lett. **96**, 232301 (2006).
37. THE THREE-BOSON SYSTEM AT NEXT-TO-NEXT-TO-LEADING ORDER, L. Platter and D. R. Phillips, Few-Body Systems **40**, 35 (2006).
38. DEUTERON MATRIX ELEMENTS IN CHIRAL EFFECTIVE THEORY AT LEADING ORDER, L. Platter and D. R. Phillips, Phys. Lett. **B641**, 164 (2006).
39. CHIRAL EFFECTIVE THEORY PREDICTIONS FOR DEUTERON FORM FACTOR RATIOS AT LOW Q^2 , D. R. Phillips, J. Phys. G (in press).

Conference Proceedings

1. COVARIANT EQUATIONS FOR THE $NN - \pi NN$ SYSTEM, D. R. Phillips and I. R. Afnan, 14th Int'l. Conf. on Few-Body Problems in Physics, Williamsburg, VA, 1994, in AIP Conference Proceedings **334**, Editor F. Gross (AIP Press, New York, NY, 1995), pp. 897–900.
2. RELATIVISTIC BOUND-STATE EQUATIONS IN THREE DIMENSIONS, D. R. Phillips and S. J. Wallace, Proceedings of the 14th Int'l. Conf. on Particles and Nuclei, Williamsburg, VA, 1996, Editors C. E. Carlson and J. J. Domingo (World Scientific, Singapore, 1997), pp. 681–2.
3. REGULARIZATION AND RENORMALIZATION IN EFFECTIVE FIELD THEORIES OF THE NUCLEON-NUCLEON INTERACTION, D. R. Phillips, S. R. Beane, and T. D. Cohen, Nucl. Phys. **A631** (1998), 447c-451c.
4. REGULARIZATION AND THE POTENTIAL OF EFFECTIVE FIELD THEORY IN NN SCATTERING, D. R. Phillips, in “Nuclear Physics with Effective Field Theory”, Editors M. Savage, R. Seki, and U. van Kolck (World Scientific, Singapore, 1999), pp. 103–19,
5. ELECTRON-DEUTERON SCATTERING IN A RELATIVISTIC THEORY OF HADRONS, D. R. Phillips, in “Workshop on Electron-Nucleus Scattering, Elba International Physics Centre, Marciana Marina, Isola d’Elba. 1998”, Editors O. Benhar, A. Fabrocini, and R. Schiavilla.
6. ELECTRON-DEUTERON SCATTERING IN A RELATIVISTIC THREE-DIMENSIONAL FRAMEWORK, D. R. Phillips, in “Few-Body Problems in Physics '99: Proceedings of the 1st Asia-Pacific Conference, Tokyo, Japan, 1998”, Editors S. Oryu, M. Kamimura, and S. Ishikawa.
7. PROBING THE EFFECTIVENESS: CHIRAL PERTURBATION THEORY CALCULATIONS OF LOW-ENERGY REACTIONS ON THE DEUTERON, D. R. Phillips, Nucl. Phys. **A680**, 293–298 (2001).
8. PROBING THE EFFECTIVENESS: CHIRAL PERTURBATION THEORY CALCULATIONS OF LOW-ENERGY ELECTROMAGNETIC REACTIONS ON DEUTERIUM, Daniel R. Phillips, in “Mesons and Light Nuclei, 8th conference, Prague, Czech Republic, 2001”, Editors J. Adam, P. Bydzovsky, and J. Mares, pp. 149–160.
9. DEUTERON COMPTON SCATTERING IN CHIRAL PERTURBATION THEORY, M. Malheiro, S. R. Beane, D. R. Phillips, U. van Kolck, in “Caraguatatuba 2000, Hadron physics 2000”, 285-288.
10. M. POINCARÉ VISITS JEFFERSON LAB: RELATIVISTIC MODELS OF FEW-NUCLEON SYSTEMS, D. R. Phillips, Nucl. Phys., **A737**, 52–60 (2004).

11. CHIRAL EFFECTIVE FIELD THEORY OF THE $\Delta(1232)$ IN COMPTON SCATTERING, V. Pascalutsa and D. R. Phillips, Nucl. Phys. **A737**, S67–S69 (2004).
12. CHIRAL DYNAMICS IN THE DELTA(1232) REGION, V. Pascalutsa and D. R. Phillips, in proceedings of the “Fourth International Workshop on Chiral Dynamics in Theory and Experiment”, Bonn, Germany, 2003
13. EFFECTIVE FIELD THEORIES FOR NUCLEAR PHYSICS: A BRIEF, BIASED, BIBLIOGRAPHIC ESSAY, to appear in the proceedings of the 2003 Hampton University Graduate Studies held at Jefferson Lab (to be published by World Scientific).
14. COMPTON SCATTERING ON HE-3, D. Choudhury, D. R. Phillips, A. Nogga, in proceedings of the “Fifth International Workshop on Chiral Dynamics in Theory and Experiment”, Chapel Hill, 2006.
15. COMPTON SCATTERING ON HE-3, D. Choudhury, D. R. Phillips, A. Nogga, in proceedings of the “Fifth International Workshop on Chiral Dynamics in Theory and Experiment”, Chapel Hill, 2006.
16. WORKING GROUP SUMMARY: CHIRAL DYNAMICS IN FEW-NUCLEON SYSTEMS, H.-W. Hammer, N. Kalantar-Nayestanaki, D. R. Phillips, in proceedings of the “Fifth International Workshop on Chiral Dynamics in Theory and Experiment”, Chapel Hill, 2006.

Colloquia

“The $NN - \pi NN$ system: on the borderline of nuclear and particle physics”
Flinders University (1994)

“The Bethe-Salpeter equation in $\phi^2\sigma$ field theory”, Flinders University (1995)

“Relativistic bound-state equations in three dimensions”, Flinders University (1996)

“Effective field theory for the nucleon-nucleon interaction?”, University of Regina (1997), University of New Mexico (1997)

“What’s going on in there? Electron scattering from the deuteron and the role of relativity”, Ohio University (1999)

“Nuclear Impressionism”, University of Iowa (2001), College of William and Mary (2003),
Ohio University (2003),
St. Mary’s University (2005),
University of South Carolina (2005).

“Strong QCD and the Search for a Fundamental Understanding of Matter”,
Chubu University (2006).

Seminars (only talks given since 1996 listed)

The $NN - \pi NN$ system: a coupled-channels problem in field theory

TRIUMF, Vancouver (1996)
University of Washington (1996)
Forschungszentrum, Jülich, Germany (2001)

Effective field theory for the nucleon-nucleon interaction

TJNAF, Newport News (1996)

The potential of effective field theory in nucleon-nucleon scattering

Los Alamos National Laboratory (1997)
Argonne National Laboratory (1997)
University of Adelaide (1998)
California Institute of Technology (1998)
University of Washington (1998)
Indiana University Cyclotron Facility (1998)

What is it good for? Effective field theory in the two-nucleon system

University of Adelaide (1999)
TJNAF, Newport News (1999)
Forschungszentrum, Jülich, Germany (1999)

Relativistic bound-state equations in three dimensions

Kent State University (1997)
University of Regina (1997)

Electron-deuteron scattering in a current-conserving relativistic theory of hadrons

TJNAF, Newport News (1998)
George Washington University (1998)

Does the Dirac equation describe spin-half composites?

Los Alamos National Laboratory (1997)

Extra dimensions, SN1987a, and nucleon-nucleon scattering data

Ohio State University (2000)
Flinders University (2000)
TRIUMF, Vancouver (2001)
INT, Seattle (2001)
University of Pittsburgh/Carnegie Mellon University joint seminar (2002)
University of Barcelona, Spain (2002)

Probing the effectiveness: χ PT calculations of low-energy reactions on deuterium

Technical University of Munich (2001)
University of Manchester, Manchester, U. K. (2001)

Compton scattering from the proton, deuteron, and neutron

Ohio University (2000)
University of Kentucky (2002)
Thomas Jefferson National Accelerator Facility (2003)
Indiana University (2004)
University of Maryland (2004)
Lawrence Berkeley Laboratory (2005)
University of Illinois (2005)

Chiral perturbation theory for electroweak reactions on deuterium

Thomas Jefferson National Accelerator facility (2005)
Research Center for Nuclear Physics, Osaka (2006)
Tokyo Institute of Technology (2006)
Osaka University (2006)

Using chiral perturbation theory to extract the neutron-neutron scattering length
from $\pi^- d \rightarrow nn\gamma$

Asia-Pacific Center for Theoretical Physics, Seoul (2006)
Argonne National Laboratory (2006)

The role of the Delta (1232) in nuclear effective theory

Ohio State University (2006)
Duke University (2006)

Electron-deuteron scattering in chiral effective theory

Bates Linear Accelerator (2005)
University of Bonn (2006)

Invited talks at workshops and conferences

“Regularization and the potential of effective field theory in NN scattering”, at Workshop on Effective Field Theories in Nuclear Physics, Caltech, February 1998

“Electron-deuteron scattering in a current-conserving relativistic theory of hadrons”, at Workshop on Electron-Nucleus Scattering, Elba International Physics Centre, Marciana Marina, Isola d’Elba, July 1998

“Probing the effectiveness: effective field theory calculations of low-energy reactions on light nuclei”, APS Centennial Meeting, Atlanta, March 1999.

“An equal-time approach to the theory of relativistic few-hadron systems”, Symposium on current topics in the field of light nuclei, Cracow, Poland, June 1999.

“How effective are NN potential models?”, ECT* workshop on “The Nuclear Interaction: Modern Developments”, Trento, Italy, July 1999.

“Electron-deuteron scattering in a three-dimensional relativistic framework”, First Asia-Pacific Conference on Few-Body Problems in Physics, Noda-Kashiwa, Japan, August 1999.

“Probing the effectiveness: chiral perturbation theory calculations of low-energy reactions on the deuteron”, International Conference on Quark Nuclear Physics, Adelaide, February 2000.

“Extra dimensions, SN1987a, and nucleon-nucleon scattering data”, Workshop on Effective Theories and Effective Interactions, Seattle, July 2000.

“Good news, bad news: recent results from relativistic calculations of elastic electron scattering on deuterium”, Gordon Research Conference on Photonuclear Reactions, Tilton, NH, August 2000.

“Effective field theory, bare interactions, and bare currents”, Town Meeting on Nuclear Structure and Nuclear Astrophysics, Oakland, CA, November 2000.

“Electron-deuteron scattering in a relativistic theory of hadrons”, Workshop on Relativity in Hadronic Systems, Trento, Italy, November 2000.

“Accurate calculations of electromagnetic reactions on deuterium”, Workshop on recent progress in the NN system, Institute for Nuclear Theory, Seattle, June 2001.

“Probing the effectiveness: chiral perturbation theory calculations of low-energy reactions on deuterium”, Conference on Mesons and Light Nuclei, Prague, Czech Republic, July 2001.

“Building light nuclei from neutrons, protons, and pions”, Lectures at Summer School on Hadronic Physics, Prague, Czech Republic, July 2001.

“A renormalized equation for the three-body system with short-range interactions”, Workshop “Pushing the Limits of QCD”, Benasque, Spain, July 2002.

“Compton scattering on deuterium in chiral perturbation theory”, Manchester, U.K., July 2002.

“The three-nucleon system in effective field theory”, Workshop on Effective Theories of Strongly-Interacting Matter, Manchester, U.K., July 2002.

“Effective field theory for nuclear physics”, Lectures at Jorge Andre Swieca School on Nuclear Physics, Sao Paulo, Brazil, February 2003.

“M. Poincaré visits Jefferson Lab: Relativistic Models of few-nucleon systems”, International Conference on Few-body Problems in Physics, Durham, June 2003.

“Effective field theory for nuclear physics”, Summer School Lectures for “Hampton University Graduate Studies at Jefferson Lab”, June 2003.

“Probing the effectiveness: chiral perturbation theory calculations of low-energy reactions on deuterium”, Workshop on Chiral Dynamics of Hadrons and Hadrons in a Medium, Valencia, Spain, June 2003.

“Probing the effectiveness: chiral perturbation theory calculations of low-energy reactions on deuterium”, Nuclear Physics Gordon Conference, Waterville, ME, July 2003.

“Deuteron form factors: what have we learned?”, Hall C Summer Workshop, Jefferson Lab, September 2003.

“Compton scattering from the proton, deuteron, and neutron”, Workshop on the NN/NNN system, Institute for Nuclear Theory, Seattle, October 2003.

“Chiral perturbation theory for electroweak reactions on deuterium”, Meeting of the Division of Nuclear Physics of the APS, Tucson, October 2003.

“Effective field theory methods”, National Nuclear Physics Summer School, Bar Harbor, ME, June 2004.

“Chiral perturbation theory for electroweak reactions on deuterium”, INT Workshop on Nuclear Forces and the Quantum Many-body Problem, Seattle, October 2004.

“Nucleon polarizabilities from Compton scattering on deuterium: an opportunity for MAXlab”, MAXlab Program Advisory Committee meeting, Lund, Sweden, December 2004.

“Using chiral perturbation theory to extract the neutron-neutron scattering length from $\pi^-d \rightarrow nn\gamma$ ”, ECT* workshop on Charge Symmetry Breaking and Other Isospin Violation, Trento, Italy, June 2005.

“The role of the Delta isobar in nuclear EFT”, ECT* workshop on QCD and Nuclear Forces, Trento, Italy, June 2005.

“Compton scattering from deuterium”, HIGS workshop on Compton Scattering and Few-body Nuclear Physics, Chapel Hill, September 2006.

With D. Choudhury and A. Nogga, “Investigating Neutron Polarizabilities using Compton Scattering from Helium-3” 5th International Workshop on Chiral Dynamics, Chapel Hill, NC, September 2006.

“Few-nucleon physics: Working Group Summary” 5th International Workshop on Chiral Dynamics, Chapel Hill, NC, September 2006.

With A. Gårdestig “Using low-energy weak reactions to constrain three-nucleon forces and the neutron-neutron scattering length”, 380th W. E. Heraeus Seminar, “QCD and Few-Hadron Systems”, Bad Honnef, Germany, November 2006.

Contributed talks at workshops and conferences

“Covariant equations for the $NN - \pi NN$ system”, at 14th Int’l. Conf. on Few-Body Problems in Physics, Williamsburg, VA, May 1994

“Relativistic bound-state equations in three dimensions”, at 14th Int’l. Conf. on Particles and Nuclei, Williamsburg, VA, May 1996

“How short is too short? Short-range interactions in effective field theory treatments of nucleon-nucleon scattering”, at APS April Meeting, Washington, DC, April 1997

“Low-energy spin-orbit interaction of composite spin-half systems with scalar and vector fields”, at APS April Meeting, Washington, DC, April 1997

“A gauge invariant three-dimensional description of relativistic bound-states”, at Workshop on Relativity in Few-Body Systems, Groningen, The Netherlands, July 1997

“Regularization and renormalization in effective field theories of the nucleon-nucleon interaction”, at 15th Int’l. Conf. on Few-Body Problems in Physics, Groningen, The Netherlands, July 1997

“Extra dimensions, SN1987a, and nucleon-nucleon scattering data”, Mid-west Nuclear Theory Get-together, Argonne National Laboratory, September 2000.

With Y. Pidopryhora: “Low-energy theory for spinless ‘neutron-proton’ bremsstrahlung: work in progress”, Ohio Section Meeting of the APS, Columbus, October 2002.

With D. Choudhury and E. Mortenson, “Constraining the short-range NN force using the Nijmegen PWA93 1S_0 phase shift solution”, Ohio Section Meeting of the APS, Columbus, October 2002.

With V. Pascalutsa, “Compton Scattering on the proton in chiral perturbation theory with explicit Δ degrees of freedom”, Mid-West Nuclear Theory Get-together, Argonne National Laboratory, October 2002.

“Compton Scattering on the proton in chiral perturbation theory with explicit Δ degrees of freedom”, APS April Meeting, Philadelphia, April 2003.

With D. Choudhury, “Compton scattering on the deuteron in chiral perturbation theory”, Ohio Section of the APS meeting, Athens, April 2004.

With A. Gårdestig, “The neutron-neutron scattering length extracted from $\pi^- d \rightarrow nn\gamma$ ”, Fall meeting of the Division of Nuclear Physics of the APS, Chicago, October 2004.

D. R. Phillips, “Compton scattering on the proton and deuteron using chiral effective theory”, Fall meeting of the Division of Nuclear Physics of the APS, Maui, September 2005.

With D. Choudhury, “Compton scattering on the proton and deuteron using chiral effective theory”, Fall meeting of the Division of Nuclear Physics of the APS, Maui, September 2005.

With D. Choudhury, “Compton scattering on the proton and deuteron using chiral effective theory”, Midwest Nuclear Theory Get-together, Argonne National Laboratory, October 2005.

TEACHING

At Ohio University: Fall 2000, Physics 311, Mechanics
 Winter 2001, Physics 737, Quantum Field Theory
 Spring 2001, Physics 253, General Physics: Electromagnetism and Optics
 Fall 2001, Physics 311, Mechanics
 Fall 2001, Physics 615, Mathematical Methods
 Winter 2002, Physics 312, Mechanics II
 Fall 2002, Physics 615, Mathematical Methods
 Winter 2003, Physics 737, Quantum Field Theory
 Spring 2003, Physics 871, Advanced Quantum Theory
 Winter 2004, Physics 312, Mechanics II
 Spring 2004, Physics 253, General Physics: Electromagnetism and Optics
 Fall 2004, Physics 253, General Physics: Electromagnetism and Optics
 Winter 2005, Physics 737, Quantum Field Theory
 Spring 2005, Physics 871, Advanced Quantum Theory
 Fall 2005, Physics 253, General Physics: Electromagnetism and Optics
 Winter 2006, Physics 616, Mathematical Methods II
 Fall 2006, Physics 469/569, Mathematical Physics

At University of Washington: substitute lecturer on about 10 different occasions for Profs.
 G. A. Miller, M. J. Savage, A. Bulgac, and W. Haxton.

At University of Maryland: substitute lecturer on about 15 different occasions

At Flinders University: tutor in various courses, 1992–1994.

Graduate Committee work:

Mr. J. R. Cooke (Ph. D. student, University of Washington), 1999–2001
 Mr. G. MacLachlan (Ph. D. student, Ohio University), 2000–2004
 Mr. H. Liu (Ph. D. student, Ohio University), 2000–2005
 Mr. A. Weichselbaum (Ph. D. student, Ohio University), 2000–2004
 Mr. G. Caia (Ph. D. student, Ohio University), 2002–2004
 Mr. S. Zeng (Ph. D. student, Ohio University), 2003–2004
 Mr. C. Matei (Ph. D. student, Ohio University), 2004–2006
 Ms. M. Joshi (Ph. D. student, Ohio University), 2006–
 Mr. Z. Heinen (Ph. D. student, Ohio University), 2006–

Student Advising:

K. A. Scaldeferri (Summer Scholar in Maryland Physics Department, 1996)
 W. D. Linch (Summer Scholar in Maryland Physics Department, 1997)
 M. P. Dorsten (REU student, University of Washington, Summer 1999)
 Y. Pidopryhora (M. S. student, Ohio University, Fall 2001–Spring 2003).
 Mr. Pidopryhora completed a Masters thesis “Testing the Low energy
 theorem for spinless ‘neutron-proton’ bremsstrahlung” in March of 2003.
 D. Choudhury (Ph. D. student, Ohio University, Fall 2002–Fall 2006)

Ms. Choudhury completed her Ph. D. dissertation “Investigating Neutron Polarizabilities and NN Scattering in Heavy-Baryon Chiral Perturbation Theory” in November 2006.

H. Shoniyozov (M. S. student, Ohio University, Fall 2004–Summer 2005)

Mr. Shoniyozov completed a Masters project “Dressing the Δ in chiral effective theory” in August of 2005.

Special Study Students:

M. Mozer (Graduate Student), Spring 2001

J. Brower (Undergraduate Student), Spring 2001

PROFESSIONAL ACTIVITIES

Committee work at Ohio University

Chair, Colloquium Committee, Academic year 2002-2003, 2003-2004

Chair, Graduate Curriculum Committee, Academic year 2004-2005, 2005-2006

Interim Chair, Graduate Committee, Academic year 2005-2006

Member, Graduate Committee, Academic year 2004-2005

Chair, Departmental Futures Committee 2006

Member, Astrophysics Search Committee, Academic year 2004-2005

Member, Nuclear/Particle Theory Search Committee, Academic year 2004-2005

Member, Departmental Futures Committee, Academic year 2002-2003

Chair, Oral Comprehensive Exam Committee, Academic Year 2002-2003

Interim Chair, Comprehensive Exam Committee, 2003

Member, Graduate Admissions Committee, Academic year 2002-2003, 2003-2004, 2004-2005

Member Colloquium Committee, Academic year 2000-2001, 2001-2002, and 2004-2005

Member Condensed Matter Theory Search Committee, Academic year 2001-2002

Member Experimental Nuclear Astrophysics Search Committee, 2000-2001

Seminar and conference/workshop organization

Vice-Chair, 2002 Gordon Research Conference on Photonuclear Reactions

Organized (together with Ch. Elster and C. Bennhold) a “Workshop on Dynamical Approaches to Meson Photoproduction”, at Ohio University, June 1–3, 2003, see <http://www.phy.ohiou.edu/~inpp/Workshop03> for further details.

Member, International Advisory Committee, “Lowq03: 2nd Workshop on Electromagnetic Nuclear Reactions at Low Momentum Transfer”

Chair, 2004 Gordon Research Conference on Photonuclear Reactions

Working Group Convenor, 2006 Workshop on Chiral Dynamics

Organizer (together with H. Gao, W. Glöckle, and A. Nathan) of INT Workshop on “Soft Photons and Light Nuclei”, June 2008.

Colloquium, seminar, etc. organization

Colloquium Chair, Department of Physics and Astronomy, Ohio University, 2002–2004

Helped to develop a weekly meeting intended to augment our Department's Nuclear Seminar series, PHYS 897A. This class, which meets at lunch time, involves students reading a paper assigned by the faculty members, with one particular student being responsible for leading the discussion each week, 2002–2004

INPP Seminar Organizer, Spring 2002, Fall 2004

Organized informal series of talks “Modern topics in strong interaction physics” in the Ohio University Institute for Nuclear and Particle Physics, Spring 2001

UW NTG Seminar Organizer, 1999–2000

TQHN Group Seminar Organizer, Spring 1997, Spring 1998

Refereeing/reviews

Journal articles: Physical Review C; Physical Review D; Physical Review Letters; Nuclear Physics A; Journal of Physics G; Physics Letters B; Modern Physics Letters A; International Journal of Modern Physics; European Physical Journal A.

Grant Proposals: National Science Foundation: Experimental Nuclear Physics program, Theoretical Nuclear Physics program; U. S. Department of Energy; Civilian Research and Development Foundation

Panel review: Member of Department of Energy Review Panel for the November 2002 Review of the Triangle Universities Nuclear Laboratory; Chair of panel for National Science Foundation npp Theoretical Nuclear Physics program; Member of Department of Energy Review Panel for the November 2002 Review of the Triangle Universities Nuclear Laboratory; Member of Ohio University Research Council, 2005–

Book review: Commissioned to write book review for Thomson Learning on “Mathematical Methods for Physicists”, by Susan Lea.
Commissioned to write chapter review for Tipler and Mosca “Physics”, 6th edition.

Professional Society Memberships and Service

Member of American Physical Society, 1993–; APS Divisions/Topical Groups enrolled in: Nuclear Physics, Few-Body Systems

Member, DNP Nomination Committee, 2006

Member, Executive Committee of Few-Body Systems Topical Group of the APS, 2002–2005

Member of Australian Institute of Physics, 1991–98

Member of SA Branch Committee of Australian Institute of Physics, 1992–4;
served on Meetings Sub-committee (1992) and Editorial Sub-committee (1993–4)

Inaugural President of Flinders University Physics Club (Flinders Chapter of
AIP), 1992–3

Correspondence Secretary of Flinders University Physics Club, 1994