

Joseph Carlson

Education

- 1977 **B.S. in Physics**, *Georgia Institute of Technology*.
- 1979 **M.S. in Physics**, *U. of Illinois at Urbana-Champaign*.
- 1983 **Ph. D. in Physics**, *U. of Illinois at Urbana-Champaign*.

Employment History

- 2008–present **Nuclear, Particle, Astrophysics, and Cosmology Group Leader, LANL Theoretical Division.**
- 2005–2008 **Nuclear Physics Group Leader, LANL Theoretical Division.**
- 2001–2005 **Nuclear Theory Team Leader, LANL Theoretical Division.**
- 1989–present **Staff Member, LANL Theoretical Division.**
- 1986–1989 **J. Robert Oppenheimer Fellow, Los Alamos National Laboratory.**
- 1983–1986 **Junior Research Scientist, Courant Institute of Math Sciences, NYU.**
- 1980–1983 **Research Assistant, U. of Illinois.**
- 1978–1979 **Teaching Assistant, U. of Illinois.**

Service, Honors

- 2012 **NSAC subcommittee on nuclear physics (Tribble subcommittee).**
- 2011–present **APS Division of Computational Physics Program Committee.**
- 2007–present **Computational Science and Discovery Editorial Board.**
- 1998–present **Intl. Advisory Committee for Recent Progress in Many-Body Theories.**
- 2009–2010 **APS Division of Nuclear Physics Program Committee.**
- 2010 **Chair Local Organizing Committee, DNP Fall Meeting, Santa Fe, NM..**
- 2009 **Organizing Committee, Exascale Computing for National Security.**
- 2009–2010 **APS Division of Nuclear Physics Program Committee.**
- 2004 **LANL Fellow.**
- 2003–2005 **APS/DNP Nominating Committee.**
- 2003 **Theory Subcommittee for the Nuclear Science Advisory Committee.**
- 2000–2002 **APS/DNP Fellowship Committee.**
- 1998–2001 **Physical Review C Editorial Board.**
- 1998–2001 **Advisory Committee, Institute for Nuclear Theory.**
- 1998–2001 **Program Advisory Committee, Indiana University Cooler Facility.**
- 1998 **APS/DNP Nominations Committee Member.**
- 1989–1993 **Energy Research Supercomputer Users Group Executive Committee.**
- 2001 **LANL Fellows Prize.**
- 2000 **Fellow of the American Physical Society.**
- 1986–1989 **Oppenheimer Fellow, LANL.**

Research Interests

Strongly Correlated Systems in Nuclear, Condensed Matter, and Atomic Physics.
Superfluidity and Pairing in Cold Atoms, Nuclei, and Neutron Stars.
Neutrinos in Astrophysical Environments.
Structure and Dynamics of Nuclei.
Nuclear Tests of Fundamental Symmetries.
Large-Scale Simulations and Monte Carlo Methods.

Students/Postdocs Mentored

Huaiyu Duan, *Prof. UNM.*
Joaquin Drut, *Prof. UNC.*
Stefano Gandolfi, *Staff Scientist, LANL.*
Alexandros Gezerlis, *PD Darmstadt, Prof. Guelph .*
Yusuke Nishida, *Prof. Tokyo Institute of Technology.*
Gang Shen, *PD INT, UW.*
Shiwei Zhang, *Prof. William and Mary.*

Funding

2001-present **PI, LANL Nuclear Theory Grant.**
2007-2012 **LANL PI and Science Council of UNEDF SciDAC grant.**
2012-present **PI NUCLEI SciDAC-3 grant.**
1990-present **LANL internal LDRD support.**

Meetings Organized

July. 2012 **National Nuclear Physics Summer Schoool**, *Santa Fe, NM.*
Nov. 2010 **APS Division of Nuclear Physics Fall Meeting**, *Santa Fe, NM.*
Apr. 2010 **Workshop on Finite-Volume Effects in Few-Body Systems**, *Institute for Nuclear Theory, UW.*
Oct. 2009 **NNSA Exascale Workshop**, *Washington, DC.*
July 2006 **International Neutrino Physics Conference**, *Santa Fe, NM.*
Oct. 2005 **Bethe Symposium**, *Los Alamos, NM.*
Sep. 2004 **12th International Conference on Recent Progress in Many-Body Theories**, *Santa Fe, NM.*
Sep. 2003 **Meeting on the 50th Anniversary of the Metropolis Meeting**, *Los Alamos, NM.*
Aug. 2002 **National Nuclear Physics Summer School**, *Santa Fe, NM.*

Publications - Refereed Journals

1. 'Properties of trapped neutrons interacting with realistic nuclear Hamiltonians', Pieter Maris, James P. Vary, S. Gandolfi, J. Carlson, Steven C. Pieper, submitted to Phys. Rev. C, arXiv:1302.2089. (2013).
2. 'Halo Modification of a Supernovae Neutronization Neutrino Burst', J. F. Cherry, J. Carlson, Alexander Friedland, George M. Fuller, Alexey Vlasenko, accepted for publication in Phys. Rev. D (2013).
3. 'Spin Response and Neutrino Emissivity of Dense Neutron Matter', G. Shen, S. Gandolfi, S. Reddy, J. Carlson, Phys. Rev. C 87, 025802 (2013).
4. 'Inclusive neutrino scattering off the deuteron from threshold to GeV energies', G. Shen, L. E. Marcucci, J. Carlson, S. Gandolfi, R. Schiavilla, Phys. Rev. C 86, 0355033 (2012).
5. 'Quantum Monte Carlo Approaches to Nuclear and Atomic Physics', J. Carlson, Stefano Gandolfi, and Alexandros Gezerlis, Progress in Theoretical and Experimental Physics, 01A209, (2012).
6. 'Neutrino Scattering and Flavor Transformation in Supernovae' John F. Cherry, J. Carlson, Alexander Friedland, George M. Fuller, Alexey Vlasenko, Phys. Rev. Lett. 108, 261104, (2012).
7. 'Neutrino Luminosity and Matter-Induced Modification of Collective Flavor Oscillations in Supernovae', J. F. Cherry, Meng-Ru Wu, J. Carlson, Huaiyu Duan, George M. Fuller, Yong-Zhong Qian, Phys. Rev. D 85, 125010 (2012).
8. 'Density Fluctuation Effects on Collective Neutrino Oscillations in O-Ne-Mg Core-Collapse Supernovae', J. F. Cherry, Meng-Ru Wu, J. Carlson, Huaiyu Duan, George M. Fuller, Yong-Zhong Qian, Phys. Rev. D 84, 105034 (2011).
9. 'Auxiliary Field Quantum Monte Carlo for Strongly Paired Fermions', J. Carlson, Stefano Gandolfi, Kevin E. Schmidt, Shiwei Zhang, Phys. Rev. A 84 061602(R) (2011).
10. 'The Maximum Mass and Radius of Neutron Stars and the Nuclear Symmetry Energy', S. Gandolfi, J. Carlson, Sanjay Reddy, Phys. Rev. C 85, 032801 (R) (2012).
11. 'BEC-BCS Crossover and Universal Relations in Unitary Fermi Gases', S. Gandolfi, J. Carlson, K. E. Schmidt, Phys. Rev. A 83, 041601(R) (2011).
12. 'Jastrow Functions in Double-Beta Decay', J. Engel, J. Carlson, and R. B. Wiringa, Phys. Rev. C 83 034317 (2011).
13. 'Cold Neutrons Trapped in External Fields', S. Gandolfi, J. Carlson, and S. C. Pieper, Phys. Rev. Lett. 106:012501 (2011).
14. 'Multi-angle Simulation of Flavor Evolution in the Neutronization Neutrino Burst from an O-Ne-Mg Core-collapse Supernova', J. F. Cherry, G. M. Fuller, H. Duan, and Y. Qian, Phys. Rev. D 82:085025 (2010).
15. 'Low-Density Neutron Matter', A. Gezerlis and J. Carlson, Phys. Rev. C 81, 025803 (2010).
16. 'Heavy-Light Fermion Mixtures at Unitarity', A. Gezerlis, S. Gandolfi, K. E. Schmidt, and J. Carlson', Phys. Rev. Lett. 103:060403, (2009).
17. 'Dependence of two-nucleon momentum densities on total pair momentum', R. B. Wiringa, J. Carlson, Steven C. Pieper, and J. Carlson, Phys. Rev. C 78, 021001(R). (2008).
18. 'Simulating nonlinear neutrino flavor evolution', Huaiyu Duan, George M. Fuller, and J. Carlson, Computational Science and Discovery, Vol. 1, 015007 (2008).
19. 'The Superfluid Pairing Gap in Strong Coupling', J. Carlson and Sanjay Reddy, Phys. Rev. Lett. 100, 150403 (2008).
20. 'Strongly Paired Fermions: Cold Atoms and Neutron Matter', Alexandros Gezerlis and J. Carlson, Phys. Rev. C 77, 032801(R) (2008).
21. 'Flavor Evolution of the Neutronization Neutrino Burst from an O-Ne-Mg Core-Collapse Supernovae', Huaiyu Duan, George M. Fuller, J. Carlson, and Yong-Zong Qian, Phys. Rev. Lett. 100, 021101 (2008).
22. 'Neutrino Mass Hierarchy and Stepwise Spectral Swapping of Supernovae Neutrino Flavors', Huaiyu Duan, George M. Fuller, J. Carlson, and Yong-Zong Qian, Phys. Rev. Lett. 99, 241802 (2007).
23. 'Analysis of Collective Neutrino Flavor Transformations in Supernovae', Huaiyu Duan, G. M. Fuller, J. Carlson, and Yong-Zhong Qian, Phys. Rev. D 75, 125005 (2007).
24. 'Quantum Monte Carlo Calculations of Neutron-Alpha Scattering', Kenneth M. Nollett, Steven C. Pieper, R. B. Wiringa, J. Carlson, G. M. Hale, Phys. Rev. Lett. 99, 022502 (2007).

25. 'Tensor Forces and the Ground-State Structure of Nuclei', R. Schiavilla, R. B. Wiringa, S. C. Pieper, J. Carlson, Phys. Rev. Lett. 98, 132501 (2007).
26. 'Coherent Development of Neutrino Flavor in the Supernova Environment', Huaiyu Duan, George M. Fuller, J. Carlson, and Yong-Zhong Qian, Phys.Rev.Lett. 97, 241101, (2006).
27. 'Simulation of Coherent Non-Linear Neutrino Flavor Transformations in the Supernova Environment I: Correlated Neutrino Trajectories' Huaiyu Duan, George M. Fuller, J. Carlson, and Yong-Zhong Qian, Phys.Rev. D 74 105014, (2006).
28. 'Asymmetric Two-Component Fermi Systems in Strong Coupling', J. Carlson and S. Reddy, Phys. Rev. Lett. 91 044001, (2005).
29. 'Quantum Monte Carlo Calculations of Excited States in $A=6-8$ ', S. C. Pieper, R. B. Wiringa, and J. Carlson, Phys. Rev. C 70, 054325 (2004)
30. 'Quantum Monte Carlo Studies of Superfluid Fermi Gases', S. Y. Chang, J. Carlson, V. R. Pandharipande, and K. E. Schmidt, Phys. Rev. A 70, 043602 (2004).
31. 'Parity-Violating Interaction Effects in the np System', R. Schiavilla, J. Carlson, and M. Paris, Phys. Rev. C 70, 044007 (2004).
32. 'Superfluid Fermi Gases with Large Scattering Length', J. Carlson, S-Y. Chang, V. R. Pandharipande, and K. E. Schmidt, Phys. Rev. Lett. 91, 050401 (2003).
33. 'Quantum Monte Carlo Calculations of Neutron Matter', J. Carlson, J. Morales, Jr., V. R. Pandharipande, and D. G. Ravenhall, Phys. Rev. C 68, 025802 (2003).
34. 'Parity-Violating Interactions and Currents in the Deuteron', R. Schiavilla, J. Carlson, and M. Paris, LA-UR-02-7552, Phys. Rev. C 67, 032501R (2003).
35. 'Coulomb Sum Rule for ^4He ', J. Carlson, J. Jourdan, R. Schiavilla, and I. Sick, Physics Letters B 553, 191 (2003).
36. 'Parity-Violating Interaction Effects: The Longitudinal Asymmetry in pp Elastic Scattering', J. Carlson, R. Schiavilla, V. R. Brown, and B. F. Gibson, Phys. Rev. C 65, (2002) 035502.
37. 'Longitudinal and Transverse Quasi-Elastic Response Functions of Light Nuclei', J. Carlson, J. Jourdan, R. Schiavilla, and I. Sick, Phys. Rev. C 65, (2002) 024002.
38. 'Realistic Models of Pion-Exchange Three-Nucleon Interactions', Steven C. Pieper, V. R. Pandharipande, R. B. Wiringa, and J. Carlson, LA-UR-01-1907, Phys. Rev. C 64, (2001) 014001.
39. 'Benchmark Test Calculation of a Four-Nucleon Bound State', H. Kamada, *et al.*, Phys. Rev. C 64, 044001 (2001).
40. 'Kaon Condensation in Dense Matter', J. Carlson, H. Heiselberg, and V. R. Pandharipande, Phys. Rev. C 63, 017603 (2001).
41. 'Quantum Monte Carlo calculations of $A=8$ nuclei', R. B. Wiringa, Steven C. Pieper, J. Carlson, and V. R. Pandharipande, Phys. Rev. C 62, 014001:1-23 (2000)
42. 'Issues and Observations on Applications of the Constrained-Path Monte Carlo Method to Many-Fermion Systems', J. Carlson, J. E. Gubernatis, G. Ortiz, and Shiwei Zhang, Physical Review B 59, 12788 (1999)
43. 'Structure and Dynamics of Few-Nucleon Systems', J. Carlson and R. Schiavilla, Reviews of Modern Physics 70, 743 (1998).
44. 'Weak Capture of Protons by Protons', R. Schiavilla, *et. al.*, Phys. Rev. C 58, 1263 (1998).
45. 'Quantum Monte Carlo Calculations with $A \leq 7$ ', B. S. Pudliner, V. R. Pandharipande, J. Carlson, Steven C. Pieper, R. B. Wiringa, Phys. Rev. C 56, 1720 (1997).
46. 'Pairing Correlations in the Two-Dimensional Hubbard Model', Shiwei Zhang, J. Carlson, J. E. Gubernatis, Phys. Rev. Lett. 78, 4486 (1997).
47. 'Quark substructure approach to ^4He charge distribution', L. Wilets, M. A. Alberg, Fl. Stancu, J. Carlson, Phys. Rev. C 56, 486 (1997).
48. 'Constrained Path Monte Carlo Method for Fermion Ground States', Shiwei Zhang, J. Carlson, J. E. Gubernatis, Physical Review B 55, 7464 (1997).
49. 'Neutron Drops and Skyrme Energy-Density Functionals', B. S. Pudliner, A. Smerzi, J. Carlson, V. R. Pandharipande, Steven C. Pieper, and D. G. Ravenhall, Phys. Rev. Lett. 76, 2416 (1996).
50. 'Euclidean Responses of ^4He at High Momentum Transfer', O. Benhar, J. Carlson, V. R. Pandharipande, and R. Schiavilla, Phys. Rev. C 52, 2601 (1995).

51. 'Quantum Monte Carlo Calculations of $A \leq 6$ Nuclei', B. S. Pudliner, V. R. Pandharipande, J. Carlson, and R. B. Wiringa, Phys. Rev. Lett. 74, 4396, (1995).
52. 'A Constrained Path Quantum Monte Carlo Method for Fermion Ground States', Shiwei Zhang, J. Carlson, and J. E. Gubernatis, Phys. Rev. Lett. 74, 3652 (1995).
53. 'Variational Monte Carlo Calculations of ^3H and ^4He with a Relativistic Hamiltonian - II', J. L. Forest, V. R. Pandharipande, J. Carlson, and R. Schiavilla, Phys. Rev. C52, 576 (1995).
54. 'Quantum Simulations of the Superfluid-Insulator Transition for Two-Dimensional, Disordered, Hard-Core Bosons', Shiwei Zhang, N. Kawashima, J. Carlson, and J. E. Gubernatis, Phys. Rev. Lett. 74, 1500 (1995).
55. 'Inclusive Scattering and Dynamics in Light Nuclei', J. Carlson and R. Schiavilla, Phys. Rev. C49, R2880 (1994).
56. 'Isovector Spin-Longitudinal and -Transverse Response of Nuclei', V. R. Pandharipande, J. Carlson, S. Pieper, R. B. Wiringa, and R. Schiavilla, Phys. Rev. C49, 789 (1994).
57. 'Coulomb Sum and Proton-Proton Correlations in Few-Body Nuclei', R. Schiavilla, R. B. Wiringa, and J. Carlson, Phys. Rev. Lett. 70, 3856 (1993).
58. 'Variational Monte Carlo Calculations of ^3H and ^4He with a Relativistic Hamiltonian', J. Carlson, R. Schiavilla, and V. R. Pandharipande Phys. Rev. C47, 484 (1993).
59. 'Euclidean Proton Response in Light Nuclei', J. Carlson and R. Schiavilla, Physical Review Letters 68, 3682 (1992).
60. 'Effects of Delta-Isobar Degrees of Freedom on Low-Energy Electroweak Transitions in Few-Body Nuclei', R. Schiavilla, R. B. Wiringa, V. R. Pandharipande, and J. Carlson, Phys. Rev. C45, 2628 (1992).
61. 'The Weak Proton Capture Reactions on ^1H and ^3He and Tritium β Decay', J. Carlson, D. O. Riska, R. Schiavilla, and R. B. Wiringa, Phys. Rev. C44, 619 (1991).
62. 'On the Absence of Exotic Hadrons in Flux Tube Quark Models', J. Carlson and V. R. Pandharipande, Phys. Rev. D43, 1652 (1991).
63. 'Radiative Neutron Capture on ^3He ', J. Carlson, D. O. Riska, R. Schiavilla, and R. B. Wiringa, Phys. Rev. C42, 830 (1990).
64. 'Ground State and low-lying excitations of the Heisenberg antiferromagnet', J. Carlson, Phys. Rev. B40, R846, 1989.
65. 'Fermion Monte Carlo Algorithms and Liquid ^3He ', R. M. Panoff and J. Carlson, Phys. Rev. Lett. 62, 1130, 1989.
66. 'Alpha Particle Structure', J. Carlson, Phys. Rev. C38, 1879, 1988.
67. 'Model Hamiltonians for Atomic and Molecular Systems', J. Carlson, Jules W. Moskowitz, and K. E. Schmidt, J. Chem. Phys. 90, 1003, 1989.
68. 'Stability of Dimesons', J. Carlson, L. Heller, and T. Tjon, Phys. Rev. D37, 744 (1988).
69. 'Energy and Symmetry of States in Light Nuclei', J. Carlson, J. L. Friar, and G. L. Payne, Phys. Rev. C37, 420 (1988).
70. 'Green's Function Monte Carlo Study of Light Nuclei', J. Carlson, Phys. Rev. C36, 2026 (1987).
71. 'Microscopic Calculations of ^5He with Realistic Interactions', J. Carlson, K. E. Schmidt, and M. H. Kalos, Phys. Rev. C36, 27 (1987).
72. 'Mirror Potentials and the Fermion Problem', J. Carlson and M. H. Kalos, Phys. Rev. C32, 1735 (1985).
73. 'Variational Monte Carlo Study of Oxygen 16', J. Carlson and M. H. Kalos, Phys. Rev. C32, 2105 (1985).
74. 'High-Momentum-Transfer Inelastic Neutron Scattering from Liquid ^3He ', J. Carlson, R. M. Panoff, K. E. Schmidt, P. A. Whitlock and M. H. Kalos, Phys. Rev. Lett. 55, 2367 (1985).
75. 'Binding Energies of $\Lambda\Lambda$ Hypernuclei and the 3-body ΛNN Forces', A. R. Bodmer, Q. N. Usmani, and J. Carlson, Phys. Rev. C29, 684 (1984).
76. 'Binding Energies of $\Lambda\Lambda$ Hypernuclei and the $\Lambda\Lambda$ Interaction', A. R. Bodmer, Q. N. Usmani, and J. Carlson, Nucl. Phys. A422, 510, (1984).
77. 'Variational Calculations of Resonant States in ^4He ', J. Carlson, V. R. Pandharipande, and R. B. Wiringa, Nuclear Physics A424, 47 (1984).

78. 'Three Nucleon Interaction in 3-, 4-, and ∞ -Body Systems', J. Carlson, R. B. Wiringa, and V. R. Pandharipande, Nucl. Phys. A401, 59 (1983).
79. 'Quark Model for Baryons Based on Quantum Chromodynamics', J. Carlson, J. Kogut, and V. R. Pandharipande, Phys. Rev. D27, 233 (1983).
80. 'Hadron Spectroscopy in a Flux Tube Quark Model', J. Carlson, J. Kogut, and V. R. Pandharipande, Phys. Rev. D28, 2807 (1983).
81. 'A Study of Three Nucleon Interactions in 3 and 4 Body Nuclei', J. Carlson, and V. R. Pandharipande, Nucl. Phys. A371, 301 (1981).

Invited and/or Published Talks or Book Chapters

1. 'Progress and Challenges in Nuclear Structure and Reactions', Quarks to the Universe in Computational Science, Dec. 2012, Nara, Japan.
2. 'Impact of Tensor Correlations in Nuclear Physics', Workshop on Correlations in Nuclei, Dec. 2012, Osaka University, Osaka, Japan.
3. 'Nuclear Computational Low-Energy Initiative (NUCLEI) SciDAC project', SCIDAC 2012 meeting, Sept 2012, Gaithersburg, MD.
4. 'Neutron Matter in the Laboratory, Nuclei, and Neutron Stars', Zakopane Conference on Nuclear Physics, August 2012, Zakopane, Poland.
5. 'Superfluid Pairing in Neutrons and Cold Atoms', J. Carlson, S. Gandolfi, A. Gezerlis, in *50 Years of Nuclear BCS*, Ricardo Broglia, ed., (2012).
6. 'Progress and Challenges in Nuclear Structure', Nuclear Structure 2012, August 2012, Argonne National Lab.
7. 'Quantum Monte Carlo Studies of Cold Atoms', Electron-Nucleus Scattering 12, June 2012, Marciana Marina, Italy.
8. 'Comparison and Contrast: Cold Atoms and Dilute Neutron Matter', J. Carlson, talk at Extreme Matter Institute Workshop, GSI, Darmstadt, April 2012, GSI, Darmstadt Germany.
9. 'Neutron Matter in the Laboratory and in Neutron Stars', Colloquium, Brookhaven National Laboratory, Feb 2012, Long Island, NY.
10. 'Cold Fermi Atoms: Rich Physics from Simple Interactions', Feb 2012, Ridge, NY.
11. 'Quantum Monte Carlo in Nuclear Physics and Nuclear Astrophysics', J. Carlson, plenary talk at the Conference on Computational Physics, Oct - Nov, 2011, Gatlinburg, TN.
12. 'Clustering and Correlations in ^{12}C and Neutron Matter', J. Carlson, workshop on Dynamics and Correlations in Exotic Nuclei, Oct. 2011, Kyoto, Japan.
13. 'Terrestrial and Astrophysical Superfluidity: Cold Atoms and Neutron Matter', Alexandros Gezerlis and J. Carlson, to appear in *The Neutron Star Crust*, edited by C. A. Bertulani and J. Piekarewicz.
14. 'Quantum Monte Carlo for Strongly Correlated Fermions', J. Carlson, workshop on Computational Nuclear Physics, Institute for Nuclear Theory, July 2011, Seattle, WA.
15. 'Universal Parameters from the Equation of State of Cold Fermi Gases', J. Carlson, workshop on Cold Atom Physics, Institute for Nuclear Theory, May 2011, Seattle, WA.
16. 'Quasi-Elastic (Electron) Scattering from Nuclei', J. Carlson, Short-Baseline Neutrino Physics Workshop, May 2011, Fermilab, IL
17. 'Neutron Matter from Low to High Density', workshop on 'Many-Body Correlations from Dilute to Dense Nuclear Systems, Paris, France, Feb. 2011.
18. 'Recent Monte Carlo Results for Cold Atoms', Workshop on 'Strong Interactions: From Methods to Structures', Bad Honnef, Germany, Feb. 2011.
19. 'Exascale Computing for Nuclear Science in the United States', Symposium on 'Cutting-Edge Physics of Unstable Nuclei', University of Aizu, Japan, Nov 2010.
20. 'Large Scale Simulations of Nuclear Dynamics', SCIDAC 2010, Chattanooga, TN, July 2010.
21. 'Pairing in Cold Atoms', Workshop on Superfluidity in nuclear matter, finite nuclei and ultra-cold Fermion gases, Saclay, France, June 2010.
22. 'Neutron Matter from Low to High Density', 6th Annual FRIB Workshop: Computational Forefront in Nuclear Theory, Argonne, Illinois, March 2010.
23. 'Quantum Monte Carlo', Workshop on Weakly Bound Systems in Atomic and Nuclear Physics, INT, March 2010.
24. 'Rich Physics From Simple Interactions, Argonne Physics Division Colloquium, Nov 2009.
25. 'Progress in ab-initio Calculations of Nuclear Structure', Nuclear Physics Gordon Conference, Providence, RI, July 2009.
26. 'Heavy-Light Fermions at Unitarity', INT Workshop on Many-Body Physics, Seattle, WA, May 2009.

27. 'Neutron Matter: Equation of State, Spin, and Density Response, JUSTIPEN 09, Oak Ridge National Lab, Feb. 2009.
28. 'Strongly-Coupled Fermions in Nature and the Laboratory', Confinement08, Mainz, Germany, Sept. 2008.
29. 'Neutron Matter: EOS, Spin and Density Response', PREX workshop, Jefferson Lab, Newport News, August 2008.
30. 'Cold Atoms and Neutron Matter: Theory vs. Experiment', Workshop on Cold Atoms and RHIC physics, Copenhagen, June-July 2008.
31. 'Neutron Matter and Drops', UNEDF SCIDAC workshop, Pack Forest, Washington, June 2008.
32. 'Equation of State and Pairing Gaps in Low-Density Neutron Matter and Cold Atoms', MSU workshop on Mesoscopic Physics, Oct. 2007.
33. 'Equation of State and Pairing Gaps in Low-Density Neutron Matter', UNEDF (SCIDAC) workshop, Pack Forest, WA, Aug 2007.
34. 'Pairing Gaps in low-density Neutron Matter and in Cold Atoms', J. Carlson, Workshop on Neutron Star Crusts and Surface, Seattle, WA, June 2007.
35. 'Pairing Gaps and Polarization in Cold Fermions', J. Carlson, Workshop on Fundamental Neutron Physics, Seattle, WA, June 2007.
36. 'GFMC Then and Now in Nuclear Physics', J. Carlson, Workshop on the 40th anniversary of GFMC, NY, NY, May 2007.
37. 'Coherent Neutrino Oscillations in Supernovae', J. Carlson, invited talk at APS Spring Meeting, Jacksonville, FL., April 2007.
38. 'Spin Polarized Cold Fermi Atoms', Workshop on the Intersections of Cold Atom and RHIC Physics, Trento, Italy, March 2007.
39. 'Searches for New States of Matter in Polarized Cold Fermi Atoms', S. Reddy and J. Carlson, Laser Science XII/Frontiers in Optics 2006 Meeting, Rochester, NY, Oct. 2006.
40. 'Recent Progress in Quantum Monte Carlo Calculations of Nuclear Structure and Reactions', International Conference on Nucleus-Nucleus Collisions IX, Rio de Janeiro, Aug. 2006.
41. 'Vijay Pandharipande and Few-Body Physics, 18th International IUPAP Conference on Few-Body Problems in Physics', Santos, S. Paulo, Brazil, Aug. 2006
42. 'QMC Calculations of Cold Fermi Atoms at Resonance', Workshop on New Developments in Quantum Monte Carlo, Tempe, AZ, May, 2006.
43. 'Strongly-Interacting Polarized Fermi Gases', International Conference on Recent Progress on Many-Body Theories, Buenos Aires, Argentina, Dec. 2005
44. 'Electroweak Processes in Few-Body Nuclei', workshop on Fundamental Physics with Neutrons, U. of South Carolina, Oct. 2005.
45. 'Strongly-Correlated Fermions', TNT Ccolloquium, North Carolina State U., Oct. 2005.
46. 'Strongly-Interacting Polarized Fermi Gases', workshop on New Developments in Quantum Gases, Institutue for Nuclear Theory, U. of Washington, Aug. 2005.
47. 'Microscopic Approaches to Light-Nucleus Reactions', workshop on Nuclear Forces, ECT*, Trento, Italy, June, 2005.
48. 'Simulations of Dilute Fermi Gases', workshop on Advanced Methods for Computational Many-Body Physics, Banff, Canada, Jan., 2005.
49. 'Superfluid Fermions from Atomic Gases to Neutron Stars', Oak Ridge National Laboratory Colloquium, Dec., 2004.
50. 'Dilute Fermi Atoms', workshop on Mesoscopic Physics, Michigan State University, Oct., 2004.
51. 'Microscopic Approaches to Light Nucleus Reactions', International Conference on Nuclear Data, Sept., 2004.
52. 'Parity Violation in Few-Nucleon Systems', Proceedings of Electron-Nucleus Scattering VIII, Marciana Marina, Italy, June 2004.
53. 'Multiple Facets of Few-Nucleon Physics', Old Dominion University Physics colloquium, April 2004.
54. 'Dilute Fermions: From Atoms to Matter', Institute for Nuclear Theory workshop on 'Strongly-Interacting Fermi Systems', Nov 2003.

55. 'Three-Nucleon Interactions Beyond $A=4$ ', Institute for Nuclear Theory workshop on 2N/3N systems, Oct 2003.
56. 'Electroweak Processes in Few-Body Nuclei', 17th International Conference on Few-Body Problems in Physics, Durham, North Carolina, June 2003.
57. 'Dilute Fermi Gases with Large Scattering Lengths: Atomic Gases and Neutron Matter', J. Carlson, S-Y Chang, V. R. Pandharipande, K. E. Schmidt, Workshop on the Metropolis Method in the Physical Sciences, Los Alamos, June 2003 .
58. 'Toward More Predictive Nuclear Science', LANL Predictive Science Workshop, Dec. 2002.
59. 'Parity Non-Conservation in Proton-Proton Elastic Scattering', V. R. Brown, B. F. Gibson, J. A. Carlson, and R. Schiavilla, submitted to European Physics Journal A, LA-UR-02-7814.
60. 'Parity-Violating Effects in Two-Nucleon Systems', submitted to Few-Body Systems Suppl, Lisbon, Oct., 2002.
61. 'The Nuclear Matter Problem', J. Carlson, S. Cowell, V. R. Pandharipande, J. Morales, D. G. Ravenhall, V. R. Pandharipande; Progress of Theoretical Physics Supplement **146**, 363 (2002).
62. 'Microscopic Nuclear Physics', lectures at the National Nuclear Physics Summer School, Santa Fe, NM., Aug. 2002.
63. 'From Nuclear Forces to Nuclei', LA-UR-02-6062, contribution to T-Division 50th anniversary book.
64. 'GFMC Studies of Low-Density Neutron Matter', at Electron-Nucleus Scattering VII, Elba International Physics Center, Marciana Marina, Italy, June, 2002; Eur. Phys. j. **A17**, 463 (2003).
65. 'Parity Violation in Few-Nucleon Systems', invited talk at APS spring meeting, Albuquerque, April 2002.
66. 'GFMC and Beyond', at the workshop on 'Advanced Computational Methods for Solving the Nuclear Many-Body Problem, Institute for Nuclear Theory, Seattle, March 2002.
67. 'Building Nuclei from Nucleons: from light nuclei to neutron stars', LANL P/T colloquium, Mar 2002.
68. 'Building Nuclei from Nucleons', Fellows Prize Colloquium, LANL, Feb 2002.
69. 'Nuclear Interactions and Currents: From Light Nuclei to Neutron Stars', Arizona State University Colloquium, Jan 2002.
70. 'Recent Progress in Few- to Many-Nucleon Physics', Workshop on Low-Q Physics, Halifax, Canada; Sept. 2001
71. 'Nuclear Structure and Dynamics: From Light Nuclei to Neutron Stars', APS Division of Computational Physics Meeting, Cambridge, Mass; June, 2001
72. 'Challenges in Few- to Many-Nucleon Physics', Workshop on Theories of Nuclear Forces and Few-Nucleon Systems, Institute for Nuclear Theory, June, 2001
73. 'Response in Light Nuclei', Workshop on Correlations in Nucleons and Nuclei, Institute for Nuclear Theory, March, 2001
74. 'Precision Models of the NN Interaction and Applications', Jlab Town Meeting, Dec., 2000
75. 'Parity Violation in Few-Nucleon Systems', workshop on Parity Violation, ECT*, Trento Italy, June 2000
76. 'Three Nucleon Interactions beyond $A=3$ and 4 ', XVIIth European Few-Body Conference, Evora, Portugal, September 2000
77. 'Beyond $A=2,3$, and 4 ', talk presented at Chiral Dynamics Workshop, Jefferson Lab, July 2000
78. 'Potentials and Possibilities', workshop on the Standard Nuclear Model, Elba, Italy, July 2000
79. 'Proton-Proton Capture Revisited, Invited talk at Spring 2000 APS meeting', Long Beach, CA
80. 'Path Integral Studies of Nuclei: The Computational Frontier', presented at Euresco Conference on "Electromagnetic Interactions with Nuclei", Santorini, Greece, Oct. 5-10, 1999.
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82. 'Recent Studies of the Nuclear Interaction', presented at the 10th International Conference on Recent Progress in Many-Body Theories, Seattle, Washington, Sep. 10-15, 1999; Int. Journal of Modern Physics **B15**, 1491 (2001).
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97. 'Future Prospects for Path Integral Approaches to Nuclear Structure and Response', XIIIth International Conference on Relativistic Nuclear Physics and Quantum Chromodynamics, Dubna, Russia, Sept., 1996.
98. 'Paths to More-Than-Few Body Nuclei', Gordon Conference on Dynamics of Simple Systems, Andover, NH, Aug. 1996.
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