

**CURRICULUM VITAE**  
**AKIF BAHA BALANTEKIN**

**Contact Information :**

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**Positions Held :**

2004-present: Eugene P. Wigner Professor of Physics, Department of Physics, University of Wisconsin, Madison, 53706.

2004-present: Affiliate Professor, Department of Physics, University of Washington, Seattle, 98195.

2007-2011: Department Chair (2008-2011); Chair-Elect (2007-2008); Department of Physics, University of Wisconsin, Madison, 53706

1986-2004: Assistant Professor (1986-1989), Associate Professor (1989-1992), Professor (1992-2004), Department of Physics, University of Wisconsin, Madison, 53706.

1984-1986: Eugene P. Wigner Fellow, Physics Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 37831.

1985-1986: Assistant Professor (part-time), Department of Physics and Astronomy, University of Tennessee, Knoxville, Tennessee, 37996.

1982-1984: Research Staff Member, Center for Theoretical Physics, Laboratory of Nuclear Science, Massachusetts Institute of Technology, Cambridge, Massachusetts, 02139.

1979-1982: Research Assistant, A.W. Wright Nuclear Structure Laboratory, Physics Department, Yale University, New Haven, Connecticut, 06511.

1977-1982: Teaching Fellow, Physics Department, Yale University, New Haven, Connecticut, 06511.

1975-1977: Assistant in Education, Physics Department, Middle East Technical University, Ankara, Turkey.

**Summer and Short-Term Positions :**

2012: Visiting Professor, National Astronomical Observatory of Japan

2004-2005: 21st Century Center of Excellence Visiting Professor, Tohoku Univ., Sendai, Japan

1999-2000: Visiting Professor, Max-Planck-Institut für Kernphysik, Heidelberg, Germany

1999: Organizer, National Institute for Nuclear Theory, University of Washington, Seattle; Program on Low-Energy Neutrino Physics.

1997-1998: Visiting Professor, Department of Astronomy, University of Washington; Department of Physics, University of Washington.

1994: JSPS Senior Fellow, Tohoku University, Physics Department, Sendai, Japan.

1994: Organizer, National Institute for Nuclear Theory, University of Washington, Seattle; Program on Neutrino Astrophysics.

1990,1991: Visiting Senior Scientist, Argonne National Laboratory, Physics Div.

1989: Visiting Professor, Tohoku University, Physics Department, Sendai, Japan.

1982: Visiting Postgraduate Research Physicist, Institute for Theoretical Physics, University of California, Santa Barbara, California, 93106.

**Honors and Awards :**

- 2010: American Physical Society Division of Nuclear Physics Distinguished Service Award  
 2004: Fellow, Institute of Physics (London, UK)  
 2001: Turkish Scientific Research Council Science Prize  
 2000: European Center for Theoretical Physics (ECT\*) Senior Fellow  
 1997: Wisconsin Alumni Research Foundation Mid-Career Award  
 1996: Alexander von Humboldt Foundation Senior Scientist Award  
 1994: Fellow, American Physical Society  
 1994: Japan Society for the Promotion of Science Senior Fellow  
 1987: U. S. National Science Foundation Presidential Young Investigator Award  
 1986: Martin Marietta Corporation Honors Night Jefferson Cup Award  
 1986: Martin Marietta Energy Systems Author of the Year  
 1986: Martin Marietta Energy Systems Publications Award  
 1984: Eugene P. Wigner Fellow, Oak Ridge National Laboratory  
 1978: Francis E. Loomis Fellow, Yale University  
 1977: Honorary Fellow, Turkish Scientific and Technical Research Society

**Educational Background :**

- Yale University, Physics Department, New Haven, CT 06511 M.Phil.,1979, Ph.D.,1982  
 Middle East Technical University, Ankara, Turkey M.S., 1976, B.S., 1975.

**Selected Professional Activities :**

**Agency Advisory Committees:** NSERC (Canada) Major Facilities Access Selection Panel (2005-2008); NSF/DOE Nuclear Science Advisory Committee (2003-2004).

**Journals:** Editor-in-Chief, Journal of Physics G (2005-2010), Senior Advisory Panel, Journal of Physics G (2011-); Editorial Boards: Physical Review C (1997-2000); Journal of Physics G (2002-2010).

**American Physical Society Service:** Executive Board (2008-2009); Councillor (2006-2009); APS Valley (2006), Bethe (1999-2001), and Bonner Prize (Vice-Chair, 1992; Chair, 1993) Selection Committees; APS Budget Committee (2009-2010); APS Committee on Constitution and Bylaws (2011-); Division of Nuclear Physics (DNP) Chair Line (Vice-Chair, 2001-2002; Chair-Elect, 2002-2003; Chair, 2003-2004); Forum on International Physics Executive Committee (2002-2004); DNP Dissertation Award (2003-2004), Executive (1994-1996) and Fellowship (1997-1999) Committees.

**Physics Facility Advisory Committees:** Scientific Council of the International Center for Theoretical Physics (ICTP) Eurasian Center for Advanced Research (ICTP-ECAR) (2013-); Facility for Rare Isotope Beams (FRIB) Theory Center Steering Committee (2013-); Shanghai Jiao Tong University Center for Nuclear Astrophysics International Advisory Committee (2013-); European Center for Theoretical Nuclear Physics and Related Areas (ECT\*, Italy) Scientific Board (2010-2014; Chair, 2013-2014), INT National Advisory Committee (2006-2010, Chair 2008-2010), TRIUMF (Canada) Advisory Committee (2006-2011; Chair, 2010-2011); JUSTIPEN (Japan-U.S. Theory Institute for Physics with Exotic Nuclei) Steering Committee (2006-); SNOLAB (Canada) Experiment Advisory Committee (2004-2009); Lawrence Berkeley National Laboratory Nuclear Science Division Visiting Committee (2002-2005, Chair 2004-2005); Los Alamos National Laboratory Particle and Nuclear Physics LDRD Panel (2002); University of Washington-Seattle Center for Nuclear Physics and Astrophysics Advisory Committee (Chair 1995-); Triangle Universities (Duke, North Carolina State, U. North Carolina) Nuclear Laboratory Advisory Committee (1995 -).

**University Physics Departments External Review Committees:** University of California, San Diego (2012), McGill University (2013).

**Selected Conferences:** Steering Committee, National Nuclear Physics Summer School (1997-2002)

(Chair 2000-2002); Chair (Vice-Chair) for the Gordon Conference on Nuclear Physics for 1995 (1993).

**Review Panels:** Physical Sciences review panels for the Cooperative Grants Program of the US Civilian Research and Development Foundation (2002-2007); NSF Theoretical Physics Special Interest Panel (1997-1999, Chair in 1999); Department of Energy Review Panel for U.S. Nuclear Science (1994).

**Peer Review:** NSF, DOE, Canada NRC and NSERC, Int. Science Found., Australian Research Council, and Israeli Science Found. Referee for Ann. Phys., Can. J. Phys., JHEP, J. Math. Phys., J. Phys. (A and G); Mod. Phys. Lett., Nucl. Phys. A, Phys. Rev. (A, C, and D), Phys. Rev. Lett., Phys. Lett. A and B, Science, and Z. für Physik.

**A.B. BALANTEKIN**  
**LIST OF PUBLICATIONS**

1. SO(4) Symmetry for Classification of Dibaryons and Baryoniums (with M. Koca) *Nuovo Cim.* **52A**, 500 (1979).
2. Dimension and Character Formulas for Lie Supergroups (with I. Bars) *J. Math. Phys.* **22**, 1149 (1981).
3. Representations of Supergroups (with I. Bars) *J. Math. Phys.* **22**, 1810 (1981).
4. U(6/4) Dynamical Supersymmetry in Nuclei (with I. Bars and F. Iachello) *Phys. Rev. Lett.* **47**, 19 (1981).
5. U(6/4) Supersymmetry in Nuclei (with I. Bars and F. Iachello) *Nucl. Phys.* **A370**, 284 (1981).
6. Anomalies and Eigenvalues of Casimir Operators for Lie Groups and Supergroups, *J. Math. Phys.* **23**, 486 (1982).
7. Branching Rules for the Supergroup SU(N/M) from those of SU(N+M) (with I. Bars) *J. Math. Phys.* **23**, 1239 (1982).
8. New Class of Supersymmetry in Nuclei (with I. Bars, R. Bijker, and F. Iachello) *Phys. Rev.* **C27**, 1761 (1983).
9. Potential Energy Surfaces in the Classical Limit of the IBM-2 (with B. R. Barrett and S. Levit) *Phys. Lett.* **129B**, 153 (1983).
10. Inversion Formula for the Inter-Nucleus Potential Using Sub-Barrier Fusion Cross Sections (with S. E. Koonin and J. W. Negele) *Phys. Rev.* **C28**, 1565 (1983).
11. Character Expansions for U(N) Groups and U(N/M) Supergroups, *J. Math. Phys.* **25**, 2028 (1984).
12. Character Expansions for U(N) Groups and U(N/M) Supergroups: Examples and Applications, in *Proceedings of the XIII International Colloquium on Group Theoretical Methods in Physics*, W. W. Zachary, Ed. (World Scientific, Singapore, 1984), pp. 441-444.
13. Path Integral Approach to Multidimensional Quantum Tunnelling (with N. Takigawa) *Ann. Phys.* **160**, 441 (1985).
14. Collective M1 States in the Classical Limit of the Neutron-Proton Interacting Boson Model (with B. R. Barrett) *Phys. Rev.* **C32**, 228 (1985).
15. Production of New Particles in Heavy-Ion Collisions (with C. Bottcher, M. R. Strayer, and S. J. Lee) *Phys. Rev. Lett.* **55**, 461 (1985).
16. Accidental Degeneracies and Supersymmetric Quantum Mechanics, *Ann. Phys.* **164**, 277 (1985).
17. Channel Coupling Effects in Subbarrier Fusion of Oxygen and Oxygen (with J. Q. Wu and G. Bertsch) *Phys. Rev.* **C32**, 1432 (1985).
18. Phenomenology of New Particle Production in Heavy-Ion Collisions (with C. Bottcher, M. R. Strayer, and S. J. Lee) in *Proceedings, Atomic Theory Workshop on Relativistic and QED Effects in Heavy Atoms*, H. P. Kelly and Y. K. Kim, Eds., (AIP Conf. Proc. No. 136, American Institute of Physics, New York, 1985), pp. 302-309.

19. Accidental Degeneracies, Hidden Supersymmetries and Spectrum Generating Superalgebras, in *Proceedings of the International Symposium on Nuclear Shell Models Honoring I. Talmi*, M. Vallieres and B. H. Wildenthal, Eds. (World Scientific, Singapore, 1985), pp. 616-620.
20. Determination of an Effective Radius from the Gamma-Ray Multiplicities in Fusion Reactions (with P. E. Reimer) *Phys. Rev.* **C33**, 379 (1986).
21. Realization of the Parabolic Rule in the Bose-Fermi Symmetry Schemes for Odd-Odd Nuclei (with V. Paar) *Phys. Lett.* **169B**, 9 (1986).
22. Odd-Odd Nucleus Gold-198 as a First Test of IBFFM (OTQM) (with V. Lopac, S. Brant, V. Paar, O. W. B. Schult, and H. Seyfarth) *Z. Phys.* **Z323**, 491 (1986).
23. Geometric Interpretation of the Adiabatic Model for Heavy-Ion Fusion (with M. A. Nagarajan and N. Takigawa) *Phys. Rev.* **C34**, 894 (1986).
24. A New Bose-Fermi Symmetry Chain for the Description of Odd-Odd Nuclei (with V. Paar) *Phys. Rev.* **C34**, 1917 (1986).
25. Relativistic Hartree Calculations for Axially Deformed Nuclei (with S. J. Lee, J. Fink, M. R. Strayer, A. S. Umar, P.- G. Reinhard, J. A. Maruhn, and W. Greiner) *Phys. Rev. Lett.* **57**, 2916 (1986).
26. Boson Fermion Symmetries and Dynamical Supersymmetries for Odd-Odd Nuclei (with T. Hübsh and V. Paar) in *Proceedings, American Chemical Society Symposium on Recent Advances in the Study of Nuclei Off the Line of Stability*, R. A. Meyer and D. S. Brenner, Eds. (ACS Symposium Series No. 324, American Chemical Society, Washington, D. C. , 1986), pp. 14-19.
27. Selected Topics on the Application of Supersymmetry Concepts in Nuclear Physics, in *Proceedings, IX Nuclear Physics Symposium*, Oaxtepec, Mexico, January 1986 (*Notas de Fisica* **9**, 25 (1986)).
28. Interacting Boson Model: Selected Recent Developments, in *Proceedings of the Second Conference on the Intersections Between Particle and Nuclear Physics, Lake Louise*, D. F. Geesaman, Ed. (AIP Conf. Procs. No. 150, American Institute of Physics, New York, 1986), pp. 732-737.
29. Dynamical Symmetries for Odd-Odd Nuclei, in *Proceedings of the International Conference on Nuclear Structure, Reactions, and Symmetries, Dubrovnik, Yugoslavia, June 1986*, R. A. Meyer and V. Paar, Eds. (World Scientific, Singapore, 1986), pp.223-230.
30. Collective  $2^+$  States in the U(5) Classical Limit of the Proton-Neutron Interacting Boson Model (with B. R. Barrett), *Phys. Rev.* **C35**, 1878 (1987).
31. Rotational Bands in Near-Vibrational Systems (with W. A. Friedman), *Phys. Rev.* **C36**, 311 (1987).
32. A Brief Survey of Theoretical Explanations of Anomalous Positron Peaks, *Nucl. Inst. and Meth.* **B24/25**, 273 (1987).

33. On the Possibility of New Particle Production in Heavy-Ion Collisions, in *Proceedings of the NATO Advanced Study Institute on Physics of Strong Fields, Maratea, Italy, June 1986*, W. Greiner, Ed. (Plenum, New York, 1987), pp. 349-357.
34. Algebraic and Supersymmetric Treatment of Odd-Odd Nuclei (with V. Paar, S. Brandt, D. Vretenar, D.K. Sunko, and T. Hübsch), in *Symmetries and Semiclassical Features of Nuclear Dynamics, Brasov International Summer School, Romania*, A.A. Raduta, Ed. (Springer-Verlag, Berlin, 1987), pp.179-188.
35. Comment on the Application of Spinor Symmetries for the Xe Isotopes (with H.A. Schmitt and B.R. Barrett), *J. Phys.* **G14**, 657 (1988).
36. Uniform Semiclassical Approximation to Supersymmetric Quantum Mechanics (with S.H. Fricke, P.J. Hatchell, and T. Uzer), *Phys. Rev.* **A37**, 2797 (1988).
37. Coherent States for the Harmonic Oscillator Representations of the Orthosymplectic Supergroup  $Osp(1/2N, R)$  (with H.A. Schmitt and B. R. Barrett), *J. Math. Phys.* **29**, 1634 (1988).
38. Analytical and Semiclassical Aspects of Matter-Enhanced Neutrino Oscillations (with S.H. Fricke and P.J. Hatchell), *Phys. Rev.* **D38**, 935 (1988).
39. Orthosymplectic Supersymmetry Complementary to Combined Bose-Fermi Seniority Algebras (with H.A. Schmitt, P. Halse, and B.R. Barrett), *Phys. Lett.* **B210**, 1 (1988).
40.  $\beta$ -Vibrations in the  $O(6)$  limit of the Proton-Neutron Interacting Boson Model (with B.R. Barrett and P. Halse), *Phys. Rev.* **C38**, 1392 (1988).
41. Comment on Relativistic Hartree Calculations for Axially Deformed Nuclei (with S. J. Lee, J. Fink, M. R. Strayer, A. S. Umar, P.- G. Reinhard, J. A. Maruhn, and W. Greiner) *Phys. Rev. Lett.* **60**, 163 (1988).
42. Narrow Electron-Positron and Two-Photon Peaks in Heavy-Ion Collisions, in *Proceedings of the XIth Oaxtepec Symposium in Nuclear Physics, Oaxtepec, Mexico, January 1988* (Notas de Fisica, **11**, 1 (1988)).
43. Analytical Treatments of Neutrino Oscillations in Matter, in *Proceedings of the Third Conference on the Intersections Between Particle and Nuclear Physics, Rockport, Maine, May 1988*, G.M. Bunce, Ed. (AIP Conf. Procs. No. 176, American Institute of Physics, New York, 1988), pp. 918-923.
44. Effects of Surface Vibrations on the Heavy Ion Elastic Scattering - Effects of Quantum Fluctuations (with N. Takigawa), published in *Proceedings of the Workshop on the Nuclear Optical Model Potentials and Nuclear Reactions, Tokyo Institute of Technology, July 1988*, p. 30.
45. Zero Point Motion Approach to Heavy Ion Elastic Scattering, to the Decay of a Hot Compound Nucleus, and the synthesis of Super Heavy Elements by Neutron Rich Beams (with N. Takigawa, F. Michel, M. Abe, and T. Shinozuka), published in *Proceedings of the International Symposium on*

- Heavy-Ion Reaction Dynamics in Tandem Energy Region, Hitachi, Japan, August 1988*, Y. Sugiyama, Ed. (Universal Academy Press, Tokyo, 1988), p. 303.
46. Energy and Angular Momentum Dependence of Subbarrier Fusion Cross Sections, published in *Proceedings of the International Symposium on Heavy-Ion Reaction Dynamics in Tandem Energy Region, Hitachi, Japan, August 1988*, Y. Sugiyama, Ed. (Universal Academy Press, Tokyo, 1988), p. 13.
  47. Coherent States for the Non-Compact Supergroups  $Osp(2/2N, R)$  (with H.A. Schmitt and P. Halse), *J. Math. Phys.* **30**, 274 (1989).
  48. Noncompact Orthosymplectic Supersymmetry in  $^{61}\text{Ni}$  and  $^{62}\text{Ni}$  (with H.A. Schmitt, P. Halse, and B.R. Barrett), *Phys. Rev.* **C39**, 2419 (1989).
  49. Coherent States for Orthosymplectic Supergroups, in *Proceedings of the XVIIth International Colloquium on Group Theoretical Methods in Physics, Sainte-Adele, Canada, June 1988*, Saint-Aubin and Vinet, Eds. (World Scientific, Singapore, 1989), pp. 604-607.
  50. Positive Discrete Series Representations of the Non-Compact Superalgebra  $Osp(4/2, R)$  (with H.A. Schmitt, P. Halse, and B.R. Barrett), *J. Math. Phys.* **30**, 2714 (1989).
  51. Matter-Enhanced Spin-Flavor Precession of Solar Neutrinos with Transition Magnetic Moments (with P.J. Hatchell and F. Loreti), *Phys. Rev.* **D41**, 3583 (1990).
  52. Matter and Magnetic Field Enhanced Oscillations of Solar Neutrinos in *Proceedings of the XIIIth Oaxtepec Symposium in Nuclear Physics, Oaxtepec, Mexico, January 1990* (Notas de Fisica, **13**, 19 (1990) ).
  53. Quantum Electrodynamics and Background Fields : Dynamical Effects, published in *Proceedings of the ANL Workshop on  $e^+e^-$  Pairs at GSI - A Theoretical Perspective, Argonne, Illinois, June 1990*, p. 123.
  54. Dynamical Effects in Pair Production by Electric Fields (with J.E. Seger and S.H. Fricke), *Int. J. Mod. Phys.* **A6**, 695 (1991).
  55. Interference Effects in the Schwinger Pair Production Mechanism (with S.H. Fricke), *Phys. Rev.* **D43**, 250 (1991).
  56. Dynamic Polarization Potential Induced by the Coulomb Excitation of Deformed Heavy Ions - A Geometric Scattering Approach (with N. Takigawa, F. Michel, and G. Reidemeister), *Phys. Rev.* **C44**, 477 (1991).
  57. A Geometric Approach to Strong Coupling Effects in Heavy-Ion Collisions - Deviation from the Fresnel Scattering Pattern (with N. Takigawa, F. Michel, and G. Reidemeister), *Phys. Lett.* **B262**, 199 (1991).
  58. Description of Nuclear Structure Effects in Subbarrier Fusion by the Interacting Boson Model (with J. Bennett and N. Takigawa), *Phys. Rev.* **C44**, 145 (1991).

59. Description of Pion Multiplicities using Combinants (with J. Seger), Phys. Lett. **B266**, 231 (1991).
60. Particle-hole Symmetry, F-spin and r-process parameters (with E.D. Davis, A.F. Diallo, and B.R. Barrett), Phys. Rev. **C44**, 1655 (1991).
61. Uniform Approximation and Coherent State path Integrals (with S. Fricke and T. Uzer), J. Math. Phys. **32**, 3125 (1991).
62. Direct Tests for Solar Neutrino Mass, Mixing and Majorana Magnetic Moment (with R.S. Raghavan, F. Loreti, A.J. Baltz, S. Pakvasa, and J. Pantaleone), Phys. Rev. **D44**, 3786 (1991).
63. The Description of Nuclear Structure Effects in Subbarrier Fusion by the Interacting Boson Model, published in *Proceedings of the Workshop on Heavy Ion Collisions at Energies Near the Coulomb Barrier, Daresbury, England, 1990*, M.A. Nagarajan, Ed. (IOP Conference Series No. 110, Institute of Physics, Bristol, 1991), pp. 95-102.
64. Geometric Approach to Heavy Ion Collisions - Elastic Scattering and the Synthesis of Superheavy Elements (with N. Takigawa, F. Michel, and G. Reidemeister), published in *Proceedings of the Workshop on Heavy Ion Collisions at Energies Near the Coulomb Barrier, Daresbury, England, 1990*, M.A. Nagarajan, Ed. (IOP Conference Series No. 110, Institute of Physics, Bristol, 1991), pp. 205-215.
65. The Structure of Vacuum in the Strong-Field Quantum Electrodynamics, published in *Proceedings of the Workshop "From Fundamental Fields to Nuclear Phenomena", Boulder, Colorado, September 1990*, J.A. McNeil and C.E. Price, Eds. (World Scientific, Singapore, 1991), pp. 212-221.
66. Solar Antineutrino Detection at Sudbury Neutrino Observatory (with F. Loreti), published in *Proceedings of the Fourth Conference on the Intersections Between Particle and Nuclear Physics, Tucson, Arizona, May 1991*, G.M. Bunce, Ed. (AIP Conf. Procs. No. 243, American Institute of Physics, New York, 1991), pp. 1143-1145.
67. Application of Algebraic Techniques to Multiparticle Production, published in *Proceedings of the International Symposium on Group Theory and Special Symmetries in Nuclear Physics, Ann Arbor, September 1991*, J. Draayer, Ed., (World Scientific, Singapore 1992), pp. 16-24.
68. How Decays and Final-State Interactions Affect Velocity Correlations in Heavy Ion Collisions (with K.L. Wieand and S.E. Pratt), Phys. Lett. **B274**, 7 (1992).
69. Solar and Supernova Neutrino Physics with Sudbury Neutrino Observatory (with F. Loreti), Phys. Rev. **D45**, 1059 (1992).
70. Quantal and Thermal Zero Point Motion Formulae of Barrier Transmission Probability (with N. Takigawa and Y. Alhassid), Phys. Rev. **C45**, 1850 (1992).
71. Relation Between the Nuclear Shell Model Hamiltonian and the Orthosymplectic Supergroup  $Osp(1/2)$  (with O. Castanos and M. Moshinsky), Phys. Lett. **B284**, 1 (1992).



72. Subbarrier Fusion in the Interacting Boson Model (with J.R. Bennett, A.J. Deweerd, and S. Kuyucak), *Phys. Rev.* **C46**, 2019 (1992).
73. Zero Point Motion Formula in Quantum Tunnelling (with J.R. Bennett, N. Takigawa, and Y. Alhasid), *Japanese J. Appl. Phys. Series 9*, 90 (1993).
74. Symmetries and Supersymmetries in Nuclear Physics, to be published in *Proceedings of the XXXIV Congreso Nacional de Fisica, Mexico City, Mexico, October 1991*.
75. Combinant Analysis of the Multiplicity Distributions in High-energy Collisions, *Proceedings of the VIIth International Symposium on Very High Energy Cosmic Ray Interactions, Ann Arbor, Michigan, June 1992*, L. Jones, Ed. (AIP Conf. Proceedings N. 276, New York, 1993), pp. 346-353.
76. Algebraic Approach to Particle Production in High Energy Heavy-Ion Collisions, to be published in *Proceedings of the International Workshop Symmetries in Science, Niigata, Japan, 1992*.
77. An Introduction to Supersymmetry Techniques in Many-Body Physics, in *Modern Perspectives in Many-Body Physics, Canberra, Australia*, M.P. Das and J. Mahanty, Editors (World Scientific, Singapore, 1994), pp. 279-297.
78. An Introduction to Functional Integral Techniques in Many-Body Physics, in *Modern Perspectives in Many-Body Physics, Canberra, Australia*, M.P. Das and J. Mahanty, Editors (World Scientific, Singapore, 1994), pp. 155-170.
79. Recent Theoretical Developments in the study of Fusion Reactions Below the Coulomb Barrier", in *Proceedings of the RIKEN International Workshop on Heavy-Ion Fusion Reactions with Neutron-Rich Beams, Tokyo, Japan, February 1993*, M. Ishihara, N. Takigawa, and S. Yamaji, Editors (World Scientific, Singapore, 1993), pp. 55-68.
80. Analytical Solutions to the Master Equation for a Quantized Cavity Mode (with A. Mufti, H.A. Schmitt, and M. Sargent), *J. Opt. Soc. Am.* **B10**, 2100 (1993).
81. Importance of Higher Order Coupling Effects in Subbarrier Fusion (with J.R. Bennett and S. Kuyucak), *Phys. Rev.* **C48**, 1269 (1993).
82. Molecular Bond Effects in the Fusion of Halo Nuclei (with C.A. Bertulani), *Phys. Lett.* **B314**, 275 (1993).
83. Consequences of Twisting Solar Magnetic Field in Solar Neutrino Experiments (with F. Loreti), *Phys. Rev.* **D48**, 5496 (1993).
84. Three-Flavor Vacuum Oscillations of Atmospheric and Solar Neutrinos (with A. Acker and F. Loreti), *Phys. Rev.* **D49**, 328 (1994).
85. Systematic Study of Subbarrier Fusion in Rare-Earth Nuclei (with J.R. Bennett and S. Kuyucak), *Phys. Rev.* **C49**, 1079 (1994).

86. Subbarrier Fusion in Generalized Boson Models (with J.R. Bennett and S. Kuyucak), Phys. Rev. **C49**, 1294 (1994).
87. Role of Mass Renormalization in Adiabatic Quantum Tunnelling (with N. Takigawa, K. Hagino, and M. Abe), Phys. Rev. **C49**, 2630 (1994).
88. Mott Scattering as a Probe of Long Range QCD Effects (with C.A. Bertulani and E. Ditzel), Phys. Rev. **C50**, 1104 (1994).
89. Effects of Nuclear Structure on Average Angular Momentum in Subbarrier Fusion (with J.R. Bennett and S. Kuyucak), Phys. Lett. **B 335**, 295 (1994).
90. Neutrino Oscillations in Noisy Media (with F. Loreti), Phys. Rev. D **50**, 4762 (1994).
91. *Perspectives for the Interacting Boson Model*, R.F. Casten, A. Vitturi, A.B. Balantekin, B.R. Barrett, J.N. Ginocchio, G. Maino, and T. Otsuka, Editors (World Scientific, Singapore, 1994).
92. Description of Nuclear Structure Effects in Subbarrier Fusion by the Interacting Boson Model in *Perspectives for the Interacting Boson Model*, R.F. Casten, A. Vitturi, A.B. Balantekin, B.R. Barrett, J.N. Ginocchio, G. Maino, and T. Otsuka, Editors (World Scientific, Singapore, 1994), p. 545.
93. Astrophysical Implications of Neutrino Mass and Mixings, in *Proceedings of the 1994 Conference on Intersections Between Particle and Nuclear Physics, St. Petersburg*, S. Seestrom, Editor (AIP Conf. Proceedings No. 338, New York, 1995), p. 67.
94. Path-integral Approach to no-Coriolis Approximation in Heavy-Ion Collisions (with K. Hagino, N. Takigawa, and J.R. Bennett), Phys. Rev **C52**, 286 (1995).
95. *Solar Modeling, Proceedings of the Seattle Workshop*, A.B. Balantekin and J.N. Bahcall, Editors (World Scientific, Singapore, 1995).
96. Effects of Random Density Fluctuations on Matter-Enhanced Neutrino Flavor Transitions in Supernovae and Implications for Supernova Dynamics and Nucleosynthesis (with F.N. Loreti, Y.-Z. Qian, and G.M. Fuller), Phys. Rev **D52**, 6664 (1995).
97. Universal Features of Multiplicity Distributions, in *Proceedings of the 3rd Rio de Janeiro Workshop on Relativistic Aspects of Nuclear Physics, Rio de Janeiro, Brazil, August 1993*, Chung-K-C. Hama-Y. Kodama-T., Eds. (World Scientific, Singapore, 1995), p. 159.
98. Fermion Pair Production From an Electric Field Varying in Two Dimensions (with J.E. Seger), J. Math. Phys. **37**, 219 (1996).
99. The MSW effect in a fluctuating matter density (with J. M. Fetter, and F. N. Loreti), Phys. Rev. **D54**, 3941 (1996).
100. Relations Between Fusion Cross Sections and Average Angular Momenta (with A.J. DeWeerd, and S. Kuyucak), Phys. Rev. **C54**, 1853 (1996).

101. Semiclassical Treatment of Matter-Enhanced Neutrino Oscillations for an Arbitrary Density Profile (with J.F. Beacom), *Phys. Rev.* **D54**, 6323 (1996).
102. Algebraic Approach to Nuclear Reactions, in *Proceedings of the IV. Wigner Symposium, Guadalajara, Mexico, August 1995*, T. Seligman, Editor (World Scientific, Singapore, 1996), p. 37.
103. Fusion barrier distributions in systems with finite excitation energy (with K. Hagino and N. Takigawa), *Phys. Rev.* **C56**, 2104 (1997).
104. The Nuclear Physics Wall Chart (with G.J. Aubrecht, Y. Akovali, R.M. Barnett, E. Browne, Y.D. Chan, J. Dairiki, D. Shaughnessy, R.M. Larimer, H.S. Matis, R. McDonald, M. McMahan, E.B. Norman, R. Otto, G.T. Seaborg, P. Carlock, M. Cherney, J.G. Cramer, A. Erzberger, C. Jones, K. Krane, M. Liebl, V. Noto, R. Nuckolls, H. Quinn, R. Shalit, K. Street, and J. Tyler), *Physics Teacher* **35**, 543 (1997).
105. Description of Nuclear Structure Effects in Sub-barrier Fusion by the Interacting Boson Model (with S. Kuyucak), *J. Phys. G: Nucl. Part. Phys.* **23**, 1159 (1997).
106. Small Effects in Astrophysical Fusion Reactions (with C.A. Bertulani and M.S. Hussein), *Nucl. Phys. A* **627**, 324 (1997).
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11. Light Sterile Neutrinos: A White Paper (with K.N. Abazajian, et al.), e-Print: [arXiv:1204.5379](http://arxiv.org/abs/1204.5379) [hep-ph].
12. Fundamental Physics at the Intensity Frontier (with J.L. Hewett et. al.), e-Print: [arXiv:1205.2671](http://arxiv.org/abs/1205.2671) [hep-ex].
13. Discovering the New Standard Model: Fundamental Symmetries and Neutrinos (with V. Cianciolo et al.), e-Print: [arXiv:1212.5190](http://arxiv.org/abs/1212.5190) [nucl-ex].
14. Scientific Opportunities with the Long-Baseline Neutrino Experiment [LBNE Collaboration (C. Adams et al.), e-Print: [arXiv:1307.7335](http://arxiv.org/abs/1307.7335) [hep-ex].
15. Neutrino mass hierarchy determination and other physics potential of medium-baseline reactor neutrino oscillation experiments (with Steve Kettell et al.), e-Print: [arXiv:1307.7419](http://arxiv.org/abs/1307.7419) [hep-ex].

## INVITED TALKS AT CONFERENCES

- 1984: •XIII International Colloquium on Group Theoretical Methods in Physics, College Park, Maryland;
- 1985: •Atomic Theory Workshop on Relativistic and QED Effects in Heavy Atoms, Gaithersburg, Maryland;
- Fall Meeting of the Division of Nuclear Physics of the American Physical Society, Pacific Grove, California;
  - Annual Meeting of the Southeastern Section of the American Physical Society, Athens, Georgia;
- 1986: •IX Nuclear Physics Symposium, Oaxtepec, Mexico;
- Second Conference on the Intersections Between Particle and Nuclear Physics, Lake Louise, Canada;
  - International Conference on Nuclear Structure, Reactions, and Symmetries, Dubrovnik, Yugoslavia;
  - NATO Advanced Study Institute on Physics of Strong Fields, Maratea, Italy;
- 1987: •Eighth Conference on the Application of Accelerators in Research and Industry, Denton, Texas;
- 1988: •XIth Oaxtepec Symposium in Nuclear Physics, Oaxtepec, Mexico;
- Third Conference on the Intersections Between Particle and Nuclear Physics, Rockport, Maine;
  - XVIIth International Colloquium on Group Theoretical Methods in Physics, Sainte-Adele, Canada;
  - International Symposium on Heavy-Ion Reaction Dynamics in Tandem Energy Region, Hitachi, Japan;
  - Fall Meeting of the Division of Nuclear Physics of the American Physical Society, Santa Fe, New Mexico;
- 1990: •XIIIth Oaxtepec Symposium in Nuclear Physics, Oaxtepec, Mexico
- ANL Workshop on  $e^+e^-$  Peaks at GSI - A Theoretical Perspective, Argonne, Illinois;
  - International Workshop on Heavy Ion Collisions at Energies Near the Coulomb Barrier, Daresbury, England;
  - Holifield Theory Users Group Meeting, Oak Ridge, Tennessee
  - Third Annual Summer School in Nuclear Physics, Santa Cruz, California;
  - Workshop "From Fundamental Fields to Nuclear Phenomena", Boulder, Colorado;
- 1991: •Fourth Conference on the Intersections Between Particle and Nuclear Physics, Tucson, Arizona;
- International Symposium on Group Theory and Special Symmetries in Nuclear Physics, Ann Arbor, Michigan;

- XXXIV Congreso Nacional de Fisica, Mexico City, Mexico;
- Fall Meeting of the Division of Nuclear Physics of the American Physical Society, East Lansing, Michigan;
- Workshop on Many Aspects of Neutrino Physics, Fermilab, Batavia, Illinois;
- 1992: •VIIth International Symposium on Very High Energy Cosmic Ray Interactions, Ann Arbor, Michigan;
- International Symposium on Foundations of Quantum Mechanics, Tokyo, Japan;
- International Workshop on Symmetries in Science, Niigata, Japan;
- Canadian Association of Physicists and National Science and Engineering Research Council of Canada Summer Institute in Physics : Workshop on Weak Interactions and Neutrino Physics, Kingston, Ontario, Canada;
- Workshop on Microscopic Nuclear Structure Physics, Seattle;
- 1993: •Summer School on Modern Perspectives in Many-Body Physics, Canberra, Australia;
- RIKEN International Workshop on Heavy-Ion Fusion Reactions with Neutron-Rich Beams, Tokyo, Japan.
- Symposium on Identical Bands in Nuclear Physics, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- Workshop on Relativistic Aspects of Nuclear Physics, Rio de Janeiro, Brazil.
- Mini-Symposium on Nuclear Physics, University of Sao Paulo Institute for Elementary Particle Physics Phenomenology and Nuclear Theory.
- 1994: • International Conference on Interacting Boson Model on the Occasion of Its 25th Anniversary, Padova, Italy
- Fifth Conference on Intersections of Particle and Nuclear Physics, St. Petersburg, Florida
- CAM94 (Canadian-American-Mexican Meeting of the Physical Societies), Cancun, Mexico
- 1995: • Workshop on “Massive Neutrinos and Their Applications”, Santa Fe, New Mexico
- IV Wigner Symposium, Guadalajara, Mexico
- 1996: • Workshop on “Physics of Unstable Nuclear Beams, Serra Negra, Brazil
- CASCA '96: New Windows on the Universe, Kingston, Ontario, Canada
- International Workshop on Spectrum Generating Algebras and Dynamical Symmetries in Many Body Systems with Applications to Nuclear Physics, ECT\*, Trento, Italy
- Recent Developments in Neutrino Astrophysics, International Conference on Nuclear Physics Near the Drip Lines, Gull Lake, Michigan
- International Commemorative Conference for the 30th Anniversary of the Brazilian Physical Society, Aguas de Lindoia, Brazil
- 1997: • 8th Jorge Andre Swieca Summer School, Campos de Jordao, Brazil

- FUSION97 Conference, South Durras, Australia
  - Supersymmetry and Integrable Models Workshop, Chicago
  - Solar Neutrinos: News About SNUs, Institute for Theoretical Physics, Santa Barbara Conference
- 1998:
- Slansky Memorial Symposium, Los Alamos
  - Australian National University 1998 Summer School
  - Workshop on Frontiers in Nuclear Astrophysics, Argonne National Laboratory
- 1999:
- Joint U.S. - Japan Seminar on Symmetry Principles in Many-Body Phenomena, Hawaii
  - Algebraic Methods in Many Body Physics Workshop, Seattle
  - David N. Schramm Memorial Symposium, Inner Space/Outer Space II, Fermilab
  - Eleventh Summer School in Nuclear Physics in Celebration of Maria Mayer and the 50th Anniversary of the Shell Model, University of California, San Diego
  - Reconciling SuperKamiokande Results and the Solar Neutrino Problem, International Conference on Astrophysics at High T and Low  $\tau$ , Sedona, Arizona.
  - Neutrino Physics and Astrophysics, 18th Physics Conference of the Turkish Physical Society, Adana, Turkey.
  - Constraints on Neutrino Mixing, PASCOS99 (Particles and Strings in Cosmology), Granlibakken.
- 2000:
- Int. Workshop on “Transport in Finite Many-Body Systems”, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy
  - “Nucleosynthesis 2000”, Division of Nuclear Chemistry and Technology Symposium at the 220th National American Chemical Society Meeting, Washington, D.C.
  - “Neutrino Workshop” Seattle.
  - “Recent Advances in Neutrino Physics”, Fall Meeting of the Division of Nuclear Physics of the American Physical Society, Williamsburg.
  - Town Meeting on “Astrophysics, Neutrinos, and Symmetries”, Oakland.
- 2001:
- Conference on the Physics Potential of Supernova II Neutrino Detection, Marina del Rey, February 2001.
  - International Nuclear Physics Conference, 30 July - 3 August 2001, Berkeley, CA
  - Brazilian Nuclear Physics Meeting-2001, 1 - 5 September, Aguas de Lindoia, Brazil.
  - Yukawa International Seminar 2001 (YKIS01), Physics of Unstable Nuclei, November 2001, Kyoto, Japan.



- Workshop on “Nuclear Physics with Neutrinos”, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy, December 2001.
- 2002: • European Graduate College on Complex Systems of Hadrons and Nuclei, The Castle of Rauischholzhausen, Germany, February 2002.
- Feza Gursey Summer School on Neutrino Physics and Astrophysics, Istanbul, Turkey, July 2002.
- 4th International Workshop on the Identification of Dark Matter, St. William’s College, York, England, September 2002.
- Workshop on Neutrino News from the Lab and the Cosmos, Fermilab, October 2002.
- Workshop on Physics of Stellar Collapse and Neutron Stars, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy, October 2002.
- 2003: • 40th Western Regional Nuclear & Particle Physics Conference, Lake Louise, Alberta, Canada, February 2003.
- Computational and Group Theoretical Methods in Nuclear Physics, Playa del Carmen, Mexico, February 2003.
- International Conference on Symmetries in Nuclei, Erice, Ettore Majorana Centre, Italy, March 2003.
- Workshop on Random Matrices in Subatomic Physics, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy, May 2003.
- Weak Processes, Neutrinos, and Astrophysics, International Workshop on Weak Interactions in Nuclei and Astrophysics: Standard Model and Beyond, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy, June 2003.
- Perspectives in Neutrino Physics, Gordon Conference on Nuclear Physics, Waterville, ME, July 2003.
- Solar Neutrinos, Neutrino Cross Sections, and NUSEL Developments, Workshop on Neutrino Studies at SNS, Oak Ridge, Tennessee, August 2003.
- Eighth International Workshop on Topics in Astroparticle and Underground Physics, Seattle, Washington, September 2003.
- International Conference FUSION03: From a Tunneling Nuclear Microscope to Nuclear Processes in Matter, Sendai, Japan, November 2003.
- International Symposium on Subbarrier Fusion, Matsushima, Japan, November 2003.
- International Symposium on Origin of Matter and Evolution of Galaxies 03 (OMEG03), Tokyo, Japan, November 2003.
- 2004: • KEK Workshop on Nuclear Chiral Dynamics, Tsukuba, Japan, March 2004.

- Blueprints for the Nucleus: From First Principles to Collective Motion, Istanbul, Turkey, May 2004.
- Turkish Physical Society 22th Annual Meeting, September 2004.
- 2005: • Kita-Tohoku Nuclear Theory Workshop, Akita, Japan, January 2005.
- University of Tokyo Workshop on Neutrinos and Gamow-Teller Distributions, March 2005.
- Japanese Physical Society Annual Meeting, Tokyo, Japan, March 2005.
- American Physical Society General Meeting, April 2005.
- Workshop on Double Beta Decay and Neutrino in Hawaii 2005, Second Joint Meeting of the Nuclear Physics Divisions of American and Japanese Physical Societies, September 2005.
- Future of Neutrino Physics Workshop, Santa Fe, October 2005.
- International Symposium on Origin of Matter and Evolution of Galaxies 05 (OMEG05), Tokyo, Japan, November 2005.
- Holifield Radioactive Ion Beam Facility (HRIBF) Workshop on Near and Sub-barrier Fusion of Radioactive Ions with Medium and Heavy Targets, Oak Ridge, December 2005.
- 2006: • International Symposium on Structure of Exotic Nuclei and Nuclear Forces (SENUF 06), Tokyo, Japan, March 2006.
- APS April Meeting, Dallas, TX, April 2006.
- Japan- U.S. Theory Institute for Physics with Exotic Nuclei (JUSTIPEN) Inaugural Symposium, Waki, Japan, July 2006.
- Symposium on Neutrinos and Dark Matter in Nuclear Physics, Paris, France, September 2006.
- Mini-Workshop on Low-Energy Solar Neutrinos, Blacksburg, VA, October 2006.
- 2007: • International Symposium on Neutrino Physics and Neutrino Cosmology, Hong Kong, January 2007.
- 2007 NSAC Long Range Plan Town Meeting Neutrinos, Neutron, and Fundamental Symmetries, January 2007.
- Aspen Workshop on “Neutrinos in Physics and Astrophysics”, Aspen, Colorado, January-February 2007.
- 21st Century COE 6th Symposium on Neutrino Processes and Stellar Evolution (NEPSE07), Tokyo, February 2007.
- Joint JUSTIPEN-Large Amplitude Collective Motion (LACM) Meeting, Oak Ridge, TN, March 2007.
- Groupement de Recherche Neutrino Workshop at Laboratoire Astroparticule et Cosmologie, Paris, June 2007.
- International School of Physics “Enrico Fermi”: Nuclear Structure far from Stability: new Physics and new Technology, Varenna, Italy, July 2007.

- European Center for Theoretical Studies in Nuclear Physics (ECT\*) Workshop on “Exotic Modes of Excitation: from Nuclear Structure to Astrophysics, Trento Italy, October 2007.
- DUSEL Town Meeting, Washington, D.C., November 2007.
- 2008: • 2nd LACM-EFES-JUSTIPEN Workshop, Oak Ridge, TN, January 2008.
- DUSEL Theory Workshop, Ohio State University, Columbus, OH, April 2008.
- National Nuclear Physics Summer School, George Washington University, Washington, D.C., June 2008.
- Solar Neutrino Physics, IVth Summer School on Nuclear Collective Dynamics, Feza Gürsey Institute, Istanbul, Turkey, July 2008.
- Understanding Nuclear Reactions Leading to Big-Bang Nucleosynthesis and the Fusion of Exotic Nuclei, Hokudai-TORIJIN-JUSTIPEN-EFES Workshop, Hakodate, Japan, July 2008.
- The significance of the third neutrino mixing angle  $\theta_{13}$  and the reactor experiments searching for it, SLAC Summer Institute, Stanford, CA, August 2008.
- Neutrino Oscillations, Workshop on Underground Detectors Investigating Grand Unification, Brookhaven National Laboratory, October 2008.
- The third neutrino mixing angle from the reactor experiments to core-collapse supernovae, Neutrino Frontiers Workshop, Minneapolis, October 2008.
- 2009: • Frontiers in Theoretical Neutrino Physics Workshop, Laboratoire de AstroParticule et Cosmologie, Université Paris 7-Denis Diderot, Paris, France, March 2009. .
- EURISOL Design Study Town Meeting, Pisa, Italy, March-April 2009.
- 6th Int. Workshop on Neutrino-Nucleus Interactions in the Few GeV Region, Sitges (Barcelona), Spain, May 2009.
- 4th Int. Symposium on Symmetries in Subatomic Physics, Taipei, Taiwan, June 2009.
- An Introduction to Algebraic Techniques in Many-Body Physics and Related Areas, Summer School on Group Theory Applied to Physics, Feza Gürsey Institute, Istanbul, Turkey, June 2009.
- Exploring the Third Neutrino Mixing Angle  $\theta_{13}$  and Possible CP-violation in Astrophysical Settings, Nuclear Physics Gordon Research Conference, Providence, Rhode Island, July 2009.
- Past, Present and Future of Low-Energy Neutrino Physics, 238th American Chemical Society National Meeting, Washington, D.C., August 2009.
- Neutrino Mixing Angle  $\theta_{13}$  from Reactors and the Cosmos, Workshop on Supernova Physics and DUSEL, UCLA, Los Angeles, California, September 2009.

- Neutrino interactions and astrophysics , European Center for Theoretical Studies in Nuclear Physics (ECT\*) Workshop on "Strong, Weak and Electromagnetic Interactions to probe Spin-Isospin Excitations", Trento, Italy, September-October 2009.
- Neutrino interactions in nuclear physics and astrophysics, JUSTIPEN - EFES Workshop on Unstable Nuclei, Wako, Japan, December 2009.
- 2010: • Neutrino interactions in astrophysics and the third neutrino mixing angle  $\theta_{13}$ , International Symposium on Origin of Matter and Evolution of Galaxies 2010 (OMEG10), Osaka, Japan, March 2010.
- Dissipation in Multidimensional Quantum Tunneling and Subbarrier Fusion, European Center for Theoretical Studies in Nuclear Physics (ECT\*) Workshop on "Decoherence in Quantum Dynamical Systems", Trento, Italy, April 2010.
- Symmetry and Supersymmetry in Nuclear Pairing: Exact Solutions, 10th International Spring Seminar in Nuclear Physics: New Quests in Nuclear Structure Vietri sul Mare, Italy, May 2010.
- Perspectives on Nuclear Physics Input into High-Energy Cosmic Ray Interactions, XVI International Symposium on Very High Energy Cosmic Ray Interactions, Fermilab, June 2010.
- Symmetries, Supersymmetries, and Pairing in Nuclei, XL Latin American School of Physics: Symmetries in Physics (ELAF 2010), Mexico City, July-August 2010.
- Neutrino Interactions and Rare Isotopes, Pan-American Advanced Study Institute on Rare Nuclear Isotopes (PASI 2010), Joao Pessoa, Brazil, August 2010.
- Neutrinos and Nuclear Astrophysics, 7<sup>th</sup> Balkan School on Nuclear Physics, Adrasan, Turkey, September 2010.
- The Role of Nuclear Physics in Understanding the Universe and the Origin of Elements, International Symposium New Faces of Atomic Nuclei Okinawa, Japan, November 2010.
- 2011: • Neutrinos in Nuclear Physics and Astrophysics, 15th Escola de Verao Jorge Andre Swieca Fisica Nuclear Teorica, Campos de Jordao, Brazil, January 2011.
- The last neutrino mixing angle  $\theta_{13}$ , Nuclear Physics in Astrophysics V Eilat, Israel, April 2011.
- European Doctoral Training Program on Neutrino Physics, European Center for Theoretical Studies in Nuclear Physics (ECT\*) School, Trento, Italy, April-June 2011.
- Short- and Long-baseline Neutrino Oscillations and  $\theta_{13}$ , European Center for Theoretical Studies in Nuclear Physics (ECT\*) Workshop on "The Origin of the Elements: A Modern Perspective", Trento, Italy, May 2011.

- Supernova Neutrino flavor evolution at high densities, Hamburg neutrinos from Supernova Explosions (HA $\nu$ SE 2011), DESY, Hamburg, Germany, July 2011.
  - Current Status of Neutrino Physics and Astrophysics, Int. Workshop on Frontiers in Neutrino Physics, Laboratoire de AstroParticule et Cosmologie, Université Paris 7-Denis Diderot, Paris, France, October 2011.
- 2012:
- Pairing in Nuclei, Symposium on recent topics on nuclear physics and radioactivity, Aizu Wakamatsu, Japan, March 2012.
  - Symmetries in Neutrino Physics, Workshop on "Beauty in Physics: Theory and Experiment", Cocoyoc, Mexico, May 2012.
  - Flavor Oscillations in Core-Collapse Supernovae, XXV International Conference on Neutrino Physics and Astrophysics (NEUTRINO 2012), Kyoto, Japan, June 2012.
  - Outlook for Neutrino Physics, International Symposium "Neutrinos and Dark Matter in Nuclear Physics (NDM12)", Nara, Japan, June 2012.
  - Neutrinos as a Bridge between Nuclear Astrophysics and Rare-isotope Physics, 2nd Dogye Nuclear Physics and Nuclear Astrophysics workshop, Dogye, Korea, August 2012.
  - An Outlook on Nuclear Physics, Zakopane Conference on Nuclear Physics, Zakopane, Poland, August 2012.
  - Neutrinos and Core-collapse Supernovae, 2012 Shanghai Particle Physics and Cosmology Symposium (SPCS2012) and Shanghai International Summer School of Neutrinos and Dark Matter (SSNuDM), Shanghai, China, September 2012.
  - Neutrinos and Rare Isotopes, International Symposium on Exotic Nuclear Structure From Nucleons (ENSNF 2012), Tokyo, Japan, October 2012.
  - Nucleosynthesis and Neutrinos, Element Genesis and Cosmic Chemical Evolution: r-process perspective, 1<sup>st</sup> NAOJ Visiting Fellow Workshop, Wako-shi, Japan, October 2012.
  - Neutrinos in core-collapse supernovae: symmetries, Workshop on Neutrinos and New Physics, TRIUMF, Vancouver, Canada, November 2012.
- 2013:
- Fifty-One Ergs, International workshop on the physics and observations of supernovae and supernova remnants, Raleigh, NC, May 2013.
  - Shanghai Jiao Tong University Center for Nuclear Astrophysics Inauguration Symposium, Shanghai, China, May-June 2013.
  - University of Tokyo Center for Nuclear Studies 2013 Summer School, August-September 2013.
  - Workshop on Neutrino Physics and Fundamental Symmetries, Seattle, September 2013.

**A.B. Balantekin**  
**Professional Activities**

**Colloquium and Seminar Talks (Since 1986-1987 Academic Year)**

1. "Proton-Neutron Antisymmetric  $2^+$  States in the Interacting Boson Model", Texas A&M University, Cyclotron Laboratory Seminar, November 7, 1986.
2. "Heavy-Ion Reactions Near the Coulomb Barrier: From Stellar Nucleosynthesis to Probing the Q.E.D. Vacuum", UW-Madison, Physics Department Colloquium, February 6, 1987.
3. "Path Integral Approach to Multidimensional Quantum Tunneling", UW-Madison Chemistry Department, Physical Chemistry Seminar, February 17, 1987.
4. "Orthosymplectic Supersymmetry Complementary to Bose-Fermi Seniority Groups", Drexel University Department of Physics And Atmospheric Science, Nuclear Physics Seminar, November 9, 1987.
5. "Matter Enhanced Neutrino Oscillations", University of Maryland, Physics Department Seminar, November 11, 1987.
6. "Matter Enhanced Neutrino Oscillations", University of Iowa, Physics Department, Nuclear Physics Seminar, November 18, 1987.
7. "Electron-Positron and Two-Photon Peaks in Heavy-Ion Collisions", UW-Madison, Physics Department, High Energy Seminar, January 19, 1988.
8. "Heavy-Ion Reactions Near the Coulomb Barrier: From Stellar Nucleosynthesis to Probing the Q.E.D. Vacuum", University of Arizona Physics Department Colloquium, February 24, 1988.
9. "Matter Enhanced Neutrino Oscillations", Argonne National Laboratory Physics Division, Theoretical Physics Seminar, March 15, 1988.
10. "Anomalous Particle Production in Heavy-Ion Collisions", UW-Madison, Physics Department, Nuclear Physics Seminar, April 7, 1988.
11. "Analytical and Semi-classical Aspects of Matter-Enhanced Neutrino Oscillations", Yale University, Physics Department, Joint Experimental and Theoretical Seminar, April 22, 1988.
12. "Matter Enhanced Neutrino Oscillations", Tohoku University Physics Department, Nuclear Physics Seminar, July 19, 1988.
13. "Matter Enhanced Neutrino Oscillations", University of Tokyo Physics Department, Nuclear Physics Seminar, July 22, 1988.

14. "Orthosymplectic Supersymmetry Complementary to Bose-Fermi Seniority Groups", Tokyo University Department of Physics, Nuclear Physics Seminar, August 9, 1988.
15. "Anomalous Particle Production in Heavy-Ion Collisions", Iowa State University Physics Department Colloquium, October 3, 1988.
16. "Anomalous Particle Production in Heavy-Ion Collisions", Rutgers University, Nuclear Physics Seminar, February 27, 1989.
17. Jane Globus Distinguished Speaker at CUNY : Lecture Entitled "Techniques of Supersymmetry in Nuclear and Many-Body Physics", given at Baruch College of the City University of New York, February 28, 1989.
18. "Progress Report on Electron-Positron Peaks at GSI", University of Washington at Seattle, Physics Seminar, July 13, 1989.
19. "Matter-Enhanced Spin-Flavor Precession of Solar Neutrinos", University of Wisconsin, Theory/Phenomenology Seminar, April 26, 1990.
20. "Neutrino Magnetic Moments and the Solar Neutrino Problem", Argonne National Laboratory Physics Division Seminar, June 5, 1990.
21. "Dynamical Effects in Pair Production by External Fields", Daresbury Laboratory (England) Nuclear Physics Seminar, July 10, 1990.
22. "Spin-Flavor Precession of Solar Neutrinos", National Nuclear Theory Institute Seminar, University of Washington, Seattle, August 30, 1990.
23. "Status Report on the Solar Neutrino Problem", University of Arizona Physics Colloquium, November 7, 1990.
24. "Interference Effects in Schwinger Mechanism", Louisiana State University Theoretical Physics Seminar, November 29, 1990.
25. "Status Report on the Solar Neutrino Problem", Louisiana State University Physics Colloquium, November 29, 1990.
26. "Status Report on the Solar Neutrino Problem", Georgia Institute of Technology Physics Colloquium, November 30, 1990.
27. "Status Report on the Solar Neutrino Problem", Bartol Research Foundation Physics Seminar, April 25, 1991.
28. "Multiplicities in Proton-proton and Heavy-ion Collisions", Argonne National Laboratory Theoretical Physics Seminar, July 9, 1991
29. "Perspectives on the Solar Neutrino Problem", Oak Ridge National Laboratory Physics Division Theory Seminar, October 16, 1991.

30. "A Theoretical Perspective on the Solar Neutrino Problem", University of Washington, Physics Department Colloquium, October 28, 1991.
31. "A Perspective on the Solar Neutrino Problem", Rutgers University Nuclear Physics Seminar, February 17, 1992.
32. "Solar Neutrino Physics with SNO and BOREXINO detectors", Princeton University Nuclear Physics Seminar, February 19, 1992.
33. "Solar Neutrino Physics with SNO and BOREXINO detectors", University of Pennsylvania Nuclear Theory Seminar, February 21, 1992.
34. "Pion Multiplicities in Heavy Ion Collisions", Lawrence Livermore Laboratory Nuclear Physics Seminar, March 3, 1992.
35. "Solar Neutrino Physics with SNO and BOREXINO detectors", Lawrence Berkeley Laboratory Nuclear Science Division Seminar, March 4, 1992.
36. "Magnetic Neutrino Interactions with Solar Matter", National Nuclear Theory Institute Seminar, University of Washington, Seattle, May 13, 1992.
37. "From Negative Pions to Galaxy Distributions : General Features of Multiplicity Distributions", University of Washington, Seattle Cosmic Ray Physics Seminar, May 22, 1992.
38. "From Negative Pions to Galaxy Distributions : General Features of Multiplicity Distributions", Ohio State University Theoretical Nuclear Physics Seminar, November 9, 1992.
39. "From Negative Pions to Galaxy Distributions : General Features of Multiplicity Distributions", University of North Carolina - Chapel Hill Nuclear Astrophysics Seminar, November 16, 1992.
40. "Recent Developments in Solar Neutrino Physics", Triangle Universities Nuclear Physics Colloquium, Duke University, November 17, 1992.
41. "Description of Nuclear Structure Effects in Sub-barrier Fusion", Australian National University Nuclear Physics Colloquium, January 14, 1993.
42. "Recent Theoretical Developments in Sub-barrier Fusion", Argonne National Laboratory Physics Division Seminar, July 13, 1993.
43. "From Negative Pions to Galaxy Distributions : General Features of Multiplicity Distributions", University of Maryland Nuclear Physics Seminar, August 2, 1993.
44. "Solar Neutrino Experiments : Data Confront Theory", Lawrence Berkeley Laboratory, Nuclear Science Division Colloquium, August 6, 1993.
45. "Recent Developments in Sub-barrier Fusion", University of Sao Paulo (Brazil) Nuclear Physics Colloquium, September 3, 1993.



46. "Solar Neutrino Experiments : Data Confront Theory", University of Illinois at Chicago Circle, Physics Colloquium, October 6, 1993.
47. "Solar Neutrino Experiments : Data Confront Theory", University of Wisconsin - La Crosse, Physics Colloquium, October 8, 1993.
48. "Solar Neutrino Experiments : Data Confront Theory", University of Notre Dame, Nuclear Physics Seminar, November 8, 1993.
49. "Solar Neutrino Experiments : Data Confront Theory", Creighton University, Physics Colloquium, November 12, 1993.
50. "A Theoretical Perspective on the Solar Neutrino Problem", University of Arizona, Physics Colloquium, January 26, 1994.
51. "A Theoretical Perspective on the Solar Neutrino Problem", Argonne National Laboratory Physics Division Colloquium, January 29, 1994.
52. "A Theoretical Perspective on the Solar Neutrino Problem", University of California at Riverside Physics Colloquium, February 17, 1994.
53. "Path Integral and Supersymmetry Techniques in Many Body Physics", Lecture Series at Tohoku University (Japan), August 22 through 25, 1994.
54. "Neutrino Astrophysics", Lecture Series at Tohoku University (Japan), August 29 through September 1, 1994.
55. "Nuclear Physics Input into Neutrino Astrophysics", Yukawa Institute for Physics, Kyoto University (Japan) Seminar, September 8, 1994.
56. "Astrophysical Implications of Neutrino Mass and Mixings, National Astronomical Observatory of Japan (Tokyo) Astrophysics Colloquium, September 9, 1994.
57. "Astrophysical Implications of Neutrino Mass and Mixings, Aizu University (Aizu Wakamatsu, Japan) Nuclear Physics Seminar, September 12, 1994.
58. "Description of Nuclear Structure Effects in Sub-barrier Fusion", Japan Atomic Energy Research Institute Nuclear Physics Colloquium, September 14, 1994.
59. "Nuclear Physics Input into Neutrino Astrophysics", Sendai Nuclear Science Colloquium, Tohoku University (Japan), September 16, 1994.
60. "New Perspectives in Neutrino Astrophysics", Rockefeller University High Energy Physics Seminar, November 9, 1994.
61. "Perspectives in Neutrino Astrophysics", Yale University Physics Colloquium, November 11, 1994.

62. "Perspectives in Neutrino Astrophysics", University of Minnesota Astronomy Colloquium, January 6, 1995.
63. "Perspectives in Neutrino Astrophysics", Center for Particle Astrophysics, University of California-Berkeley Seminar, February 7, 1995.
64. "Density Fluctuations in Supernovae and the Sun", Michigan State University Cyclotron Laboratory Colloquium, March 23, 1995.
65. "Density Fluctuations in Neutrino Astrophysics", Massachusetts Institute of Technology, Nuclear Theory Seminar, April 3, 1995.
66. "Physics Prospects with Neutrinos from the Sun and Supernovae", LBL Nuclear Science Division Seminar, April 27, 1995.
67. "Physics Prospects with Neutrinos from the Sun and Supernovae", University of Illinois at Urbana-Champaign Seminar, May 3, 1995.
68. "Algebraic Approaches to Nuclear Reactions", National Nuclear Theory Institute Seminar, University of Washington, Seattle, December 7, 1995.,
69. "Physics Prospects with Neutrinos from the Sun and Supernovae", Australian National University Physics Colloquium, January 11, 1996.
70. "Recent Developments in Subbarrier Fusion", Australian National University Nuclear Physics Seminar, January 17, 1996.
71. "Neutrinos in Stochastic Media", Caltech Kellogg Seminar, April 5, 1996.
72. "Physics Prospects with Neutrinos from the Sun and Supernovae", University of Southern California Physics Colloquium, April 9, 1996.
73. "Physics Prospects with Neutrinos from the Sun and Supernovae", University of California-San Diego Physics Colloquium, April 11, 1996.
74. "Physics Prospects with Neutrinos from the Sun and Supernovae", University of Washington National Institute for Nuclear Theory Colloquium, August 12, 1996.
75. "Physics Prospects with Neutrinos from the Sun and Supernovae", Ohio State University Physics Colloquium, October 8, 1996.
76. "Physics Prospects with Neutrinos from the Sun and Supernovae", Oak Ridge National Laboratory Astrophysics Colloquium, September 19, 1996.
77. "Neutrino Properties Beyond the Standard Model", Duke University High Energy Physics Seminar, November 4, 1996.

78. "Physics Prospects with Neutrinos from the Sun and Supernovae", Duke University Physics Colloquium, November 6, 1996.
79. "Physics Prospects with Neutrinos from the Sun and Supernovae", University of Iowa Physics Colloquium, November 18, 1996.
80. "Recent Developments in Subbarrier Fusion", LBL Nuclear Physics Forum, January 7, 1997.
81. "Physics Prospects with Neutrinos from the Sun and Supernovae", Institute for Nuclear and Particle Astrophysics (LBL) Colloquium, January 17, 1996.
82. "Physics Prospects with Neutrinos from the Sun and Supernovae", Kent State University Physics Colloquium, March 6, 1997.
83. "Progress and Prospects in Neutrino Astrophysics", Washington State University Physics Colloquium, December 9, 1997.
84. "The Final Word: Neutrino Summary", closing talk at the Institute of Nuclear Theory Fall 1997 Program, December 11, 1997.
85. "Algebraic Approach to Shape Invariance", Los Alamos National Laboratory Theory Division Seminar, March 31, 1998.
86. "Progress and Prospects in Neutrino Astrophysics", Oregon State University Physics Colloquium, May 12, 1998.
87. "Can we do Innovative Solar Physics with SNO?", Lawrence Berkeley Laboratory Institute for Nuclear and Particle Astrophysics Seminar, June 5, 1998.
88. "Recent Progress in Neutrino Physics and Astrophysics", Notre Dame University, Physics Colloquium, November 18, 1998.
89. "Oscillations of Solar, Atmospheric, and Supernova Neutrinos", Argonne National Laboratory Physics Division Colloquium, April 9, 1999.
90. "Recent Progress and Prospects in Neutrino Physics and Astrophysics", University of New Hampshire Physics Department Colloquium, May 3, 1999.
91. "The Role of Neutrinos in Core-collapse Supernovae and the Early Universe", University of Wisconsin-Madison Astronomy Department Colloquium, October 5, 1999.
92. "Neutrino Propagation in Stochastic Media", Max-Planck-Institut für Kernphysik Theory Seminar, Heidelberg, Germany, November 24, 1999.
93. "Supernova R-process Nucleosynthesis and Neutrino Physics", Max-Planck-Institut für Kernphysik Kaffeepalaver spricht, Heidelberg, Germany, January 13, 2000.

94. "Quantum Tunneling in Nuclear Fusion", Joint Kernphysikalisches Kolloquium der Ludwig-Maximilians-Universität und Technische Universität München, Munich, Germany, January 21, 2000.
95. "Two Themes in Neutrino Physics: Neutrinos in Stochastic Media and Supernova r-process Nucleosynthesis", Nuclear, Particle, and Astrophysics Seminar, University of Basel, Switzerland, January 27 2000.
96. "Exactly Solvable Problems and Supersymmetric Shape Invariance", Laboratoire de Physique Théorique de Strasbourg Seminar, March 17, 2000.
97. "Recent Progress and Prospects in Neutrino Physics and Astrophysics", Seminar at GANIL (Grand Accélérateur National d'Ions Lourds), Caen, France; March 31, 2000.
98. "Neutrino mass and mixings", Theoretical Physics Seminar, Institut de Physique Nucléaire d'Orsay, Paris, France; April 3, 2000.
99. "Character Expansions, Itzykson-Zuber Integrals, and the QCD Partition Function", Max-Planck-Institut für Kernphysik Theory Seminar, Heidelberg, Germany, May 23, 2000.
100. "The Role of Sterile Neutrinos in Supernova r-process Nucleosynthesis", Universität Dortmund, High Energy Physics Seminar, June 6, 2000.
101. "Does the neutrino magnetic moment play a role in the Sun and supernova r-process nucleosynthesis?" Max-Planck-Institut für Kernphysik Experimental Neutrino Physics Seminar, Heidelberg, Germany, June 7, 2000.
102. "Recent Developments in Solar and Supernova Neutrino Physics", Technische Universität, Darmstadt, Germany Physics Colloquium, June 9, 2000.
103. "Supernova r-process, Nucleosynthesis, and Sterile Neutrinos", Forschungszentrum Karlsruhe Kernphysikalischen Seminar, July 11, 2000.
104. "An Overview of Neutrino-Nucleus Interactions", University of Washington National Institute for Nuclear Theory Seminar, October 27, 2000.
105. "Physics with Solar, Atmospheric and Supernova Neutrinos", Lawrence Livermore National Laboratory Physics Seminar, January 17, 2001.
106. "Sterile Neutrinos and Core-collapse Supernovae", Lawrence Berkeley National laboratory Institute for Nuclear and Particle Astrophysics Seminar, January 19, 2001.
107. "Sterile Neutrinos and Core-collapse Supernovae", UW-Madison Theory/Phenomenology Seminar, January 26, 2001.
108. "Recent Progress and Prospects in Solar and Atmospheric Neutrino Physics", University of California-San Diego Astrophysics and Space Sciences Seminar, February 20, 2001.

109. "Solar, Atmospheric and Supernova Neutrinos: Recent Developments", University of Wisconsin-Madison Physics Colloquium, March 30, 2001.
110. "Recent Progress and Prospects in Solar, Atmospheric, and Supernova Neutrino Physics", Michigan State University Physics Colloquium, April 3, 2001.
111. "Core-Collapse Supernovae and Sterile Neutrinos", Fermilab Theoretical Astrophysics Seminar, April 16, 2001.
112. "Sterile Neutrinos and Core-Collapse Supernovae", Joint Theoretical and Experimental High-Energy Seminar, Technical University of Munich, Germany, May 17, 2001.
113. "Neutrino Processes in Core Collapse Supernovae", Ruprecht-Karls-Universität Heidelberg, Institut für Theoretische Physik, Nuclear Theory Seminar, Germany, May 21, 2001.
114. "Shape Invariance and Exactly-Solvable Quantum Systems, Max-Planck-Institut für Kernphysik Theory Seminar, Heidelberg, Germany, May 22, 2001.
115. "Neutrino Physics and Astrophysics", Middle East Technical University, Ankara, Turkey Physics Colloquium, May 25, 2001.
116. "Neutrino Physics and Astrophysics", University of Bosphoros, Istanbul, Turkey Physics Colloquium, May 30, 2001.
117. "Neutrino Physics and Astrophysics", Technical University of Istanbul Physics Colloquium, June 1, 2001.
118. "Sterile Neutrinos in Supernovae after the SNO Results", University of Washington National Institute for Nuclear Theory Seminar, July 26, 2001.
119. "Status and Future of Nuclear Physics", State University of Sao Paulo at Rio Preto (Brazil) Physics Department Seminar, August 30, 2001.
120. "Topics in Neutrino Physics: Supernova r-Process and the Recent Underground Laboratory Initiatives", Particle Astrophysics Seminar, Case Western Reserve University, October 26, 2001.
121. "The role of Neutrinos in Supernova Dynamics and r-process Nucleosynthesis, European Center for Theoretical Physics Seminar, November 26, 2001.
122. "The role of Neutrinos in Supernova Dynamics and r-process Nucleosynthesis", University of Padova Physics Colloquium, November 29, 2001.
123. "Recent Progress and Prospects in Solar, Atmospheric, and Supernova Neutrino Physics", Florida State University Physics Colloquium, March 7, 2002.
124. "Supernova r-Process and Neutrinos, Florida State University Nuclear Physics Seminar, March 8, 2002.

125. "Recent Developments and Prospects in Neutrino Physics", University of North Carolina Physics Colloquium, March 18, 2002.
126. "Sterile Neutrinos and r-process nucleosynthesis in supernovae", Los Alamos National Laboratory Physics Division Seminar, May 16, 2002.
127. "Recent Developments in Neutrino Astrophysics", Istanbul University Astronomy Department Colloquium, July 31, 2002.
128. "Neutrino Mass and Mixings: Recent Experimental Results and An Algebraic Approach", University of Washington National Institute for Nuclear Theory Seminar, November 18, 2002.
129. "A Global Analysis of Solar Neutrino and KamLAND Data - The Role of  $\theta_{13}$ ", Kavli Institute for Theoretical Physics, Santa Barbara Seminar, January 15, 2003.
130. "Recent Developments in Neutrino Physics and Astrophysics", Indiana University Physics Colloquium, January 29, 2003.
131. "Outlook in Neutrino Physics and Astrophysics", Univ. Wisconsin High Energy Physics Seminar, March 10, 2003.
132. "Two Examples of Using Nuclear Physics in the Cosmos: Subbarrier Fusion and Neutrino-nucleus Scattering", TRIUMF Nuclear Theory Seminar, April 10, 2003.
133. "Recent Progress and Prospects in Neutrino Physics and Astrophysics", University of British Columbia Physics Colloquium, April 11, 2003.
134. "Recent Progress and Prospects in Neutrino Physics and Astrophysics", Ankara University Theoretical Physics Colloquium, June 9, 2003.
135. "Character Expansions and Their Applications", CEA/Saclay Service de Physique Theorique Mathematical Physics Seminar, June 23, 2003.
136. "Shape-Invariance and Gaudin Algebras", Orsay Laboratoire de Physique Theorique et Modeles Statistiques Seminar, June 24, 2003.
137. "Recent Progress and Prospects in Neutrino Physics and Astrophysics", Centre d'Etudes de Bruyeres le Chatel Physics Colloquium, June 26, 2003.
138. "Perspectives on Neutrino Physics and Astrophysics", Ohio State University Physics Colloquium, October 21, 2003.
139. "Perspectives on Neutrino Physics and Astrophysics", University of Tennessee Physics Colloquium, January 26, 2004.
140. "Nuclear Fusion, Neutrino-Nucleus Interactions, and Astrophysics", Oak Ridge National Laboratory Physics Colloquium, January 27, 2004.

141. "Perspectives on Neutrino Physics and Astrophysics", Yukawa Institute for Theoretical Physics Colloquium, Kyoto University, Japan, February 10, 2004.
142. "Perspectives on Neutrino Physics and Astrophysics", Los Alamos National Laboratory Physics Colloquium, February 25, 2004.
143. "Gaudin Models and Their Extensions", Seminaire de Physique Theorique, Laboratoire d'Institut de Physique Nucleaire, Orsay, France, June 29, 2004.
144. "Recent progress and prospects in neutrino physics and astrophysics", Seminaire de la Division de Recherche, Laboratoire d'Institut de Physique Nucleaire, Orsay, France, July 5, 2004.
145. "Recent Experimental and Theoretical Developments in Solar and Atmospheric Neutrino Physics", Seminaire de Physique des Particules, Laboratoire de Physique Theorique, Orsay, France, July 22, 2004.
146. "Recent developments in neutrino physics", University of Washington National Institute for Nuclear Theory Colloquium, August 16, 2004.
147. "Astrophysical Implications of Neutrino Mass and Mixings", National Astronomical Observatory of Japan Colloquium, Mitaka, Japan, December 3, 2004.
148. "Frontiers in Underground Science", Aizu University Physics Colloquium, Aizu Wakamatsu, Japan, January 6, 2005.
149. "Recent progress and prospects in neutrino physics and astrophysics", Tokyo Institute of Technology Physics Colloquium, January 21, 2005.
150. "Charting the Neutrino Mass and Mixings", Research Center for Neutrino Physics, Tohoku University, Special Seminar for the KamLAND Collaboration meeting, January 28, 2005.
151. "Frontiers in Underground Science", Koc University, Istanbul, Turkey Physics Colloquium, April 11, 2005.
152. "Perspectives in Neutrino Physics and Astrophysics", Ohio University Nuclear Physics Seminar, May 3, 2005.
153. "Are supernovae Sites of r-process Nucleosynthesis?", Seminaire de Physique Theorique, Laboratoire d'Institut de Physique Nucleaire, Orsay, France, June 8, 2005.
154. "Supernovae, Neutrinos, and Nucleosynthesis, Duke University High Energy Physics Seminar, August 30, 2005.
155. "Neutrino-Nucleus Interactions: An Overview" University of Arizona Nuclear Physics Seminar, September 8, 2005.
156. "The Neutrino Chronicles: First 75 Years", University of Arizona Physics Colloquium, September 9, 2005.

157. "Neutrinos in Core-Collapse Supernovae", University of Washington Physics Colloquium, February 6, 2006.
158. "Supernovae and the Origin of Elements", Koc University, Istanbul, Turkey Physics Colloquium, May 22, 2006.
159. "Neutrino Many-Body Physics, Core-Collapse Supernovae, and r-process Nucleosynthesis", Michigan State University Cyclotron Laboratory Nuclear Seminar, September 27, 2006.
160. "Neutrinos in Core-Collapse Supernovae", Virginia Tech Physics Colloquium. October 13, 2006.
161. "Neutrinos in Astrophysics: Ghostly Messengers of the Heavens", Public Lecture in Maggie and Nick DeWolf Winter Lecture Series, Wheeler Opera House, Aspen, Colorado, January 31, 2007.
162. "Exact Solutions for Nuclear Pairing Problem", Seminaire de Physique Theorique, Laboratoire d'Institut de Physique Nucleaire, Orsay, France, February 16, 2007.
163. "Neutrinos in the Sun and Supernovae", Carleton University Theoretical Physics Seminar, Ottawa, Canada, March 9, 2007.
164. "Neutrino Astrophysics", Koc University, Istanbul, Turkey Physics Colloquium, May 24, 2007.
165. "Neutrino Astrophysics", Ankara University, Ankara, Turkey Physics Colloquium, May 28, 2007.
166. "Neutrinos and r-process Nucleosynthesis in Core-Collapse Supernovae", TRIUMF Theory Seminar, Vancouver, Canada, August 8, 2007.
167. "Solutions of the Nuclear Pairing Problem", Institute for Nuclear Theory, University of Washington, Seattle seminar, September 28, 2007.
168. "Past, Present, and Future of Solar Neutrino Physics", Southern Methodist University High Energy Physics Colloquium, January 22, 2008.
169. "Neutrinos in Astrophysics: Ghostly Messengers of the Heavens", University of Texas, Arlington Physics Colloquium, February 20, 2008.
170. "Neutrinos in Astrophysics: Ghostly Messengers of the Heavens", Texas A & M University, Commerce Physics Colloquium, February 21, 2008.
171. "Past, Present, and Future of Solar Neutrino Physics", Stanford Linear Accelerator Laboratory High Energy Physics Seminar, June 3, 2008.
172. "Perspectives on Pairing in Nuclei", Institute for Nuclear Theory, University of Washington, Seattle seminar, July 18, 2008.
173. "Neutrinos: Ghostly Messengers of Earth and Heavens", Argonne National Laboratory Physics Colloquium, September 5, 2008.



174. "The Significance of the Third Neutrino Mixing Angle  $\theta_{13}$ ", Institute for Nuclear Theory, University of Washington, Seattle seminar, October 9, 2008.
175. "Neutrinos: Ghostly Messengers of Earth and Heavens", joint Nuclear Theory Center/ Indiana University Cyclotron Center Seminar, Bloomington, Indiana, February 20, 2009.
176. "Neutrinos: Ghostly Messengers of Earth and Heavens", National Dong Hwa University Physics Colloquium, Hualien, Taiwan, June 1, 2009.
177. "Nuclear Astrophysics and Neutrinos", Istituto Nazionale Fisica Nucleare Laboratori Nazionali del Sud Nuclear Astrophysics Seminar, Catania, Italy, June 1, 2010
178. "Neutrino Physics, Neutrino Astrophysics and the Third Neutrino Mixing Angle  $\theta_{13}$ ", Institute for Nuclear Theory, University of Washington, Seattle seminar, July 26, 2010.
179. "Neutrinos: Ghostly Messengers of Earth and Heavens", Istituto Nazionale Fisica Nucleare Laboratori Nazionali del Legnaro Nuclear Physics Seminar, Legnaro, Italy, January 10, 2011.
180. "Neutrinos: Ghostly Messengers of Earth and Heavens", Edgewood College, Madison Public Lecture, March 24, 2011.
181. "Similarities between Collective Neutrino Oscillations and the Nuclear Pairing Problem", Institute for Nuclear Theory, University of Washington, Seattle seminar, June 9, 2011.
182. "Closing in on  $\theta_{13}$ ", Institute for Nuclear Theory, University of Washington, Seattle seminar, June 14, 2011.
183. "The last neutrino mixing angle,  $\theta_{13}$ ", Center for Theoretical Underground Physics (CETUP\*) seminar, Lead, SD, June 28, 2011.
184. "Towards the last neutrino mixing angle  $\theta_{13}$ : a recent perspective", Joint Karlsruhe Institute of Technology, University of Heidelberg and University of Tübingen astroparticle physics seminar, Karlsruhe, Germany; July 12, 2011.
185. "Neutrinos in Nuclear Physics and Astrophysics", University of Notre Dame physics colloquium; September 7, 2011.
186. "Neutrinos in the Sun and core-collapse supernovae", Pennsylvania State University high energy physics/astrophysics seminar, October 26, 2011.
187. "Neutrinos in the Sun and core-collapse supernovae", University of New Mexico Physics and Astronomy Colloquium, November 11, 2011
188. "Symmetries of the neutrino flavor evolution in core-collapse supernovae", Lawrence Berkeley National Laboratory Nuclear Science Division Heavy Ion Tea seminar, November 22, 2011.
189. "Neutrinos in the Sun and core-collapse supernovae", San Francisco State University Physics and Astronomy Colloquium, December 12, 2011.

190. "Neutrinos in Astronomy and Astrophysics", University of Tokyo Astronomy Colloquium, Tokyo, Japan, February 7, 2012.
191. "Perspectives in Neutrino Physics", KEK-High Energy Accelerator Research Organization, Tsukuba, Japan Seminar, February 13, 2012.
192. "Pairing in Nuclei", University of Aizu Nuclear Physics Seminar, Aizu-Wakamatsu, Japan, March 9, 2012.
193. "Pairing in Nuclei", Yukawa Institute for Theoretical Physics Nuclear Physics Seminar, Kyoto, Japan, March 23, 2012.
194. "Neutrinos and Nuclear Astrophysics", University of Tokyo Nuclear Physics Seminar, Tokyo, Japan, April 17, 2012.
195. "Neutrinos in the Cosmos", RIKEN OMEG Seminar, Wako, Japan, April 25, 2012.
196. "Recent Developments in Neutrino Physics", Ankara University Physics Seminar, Ankara, Turkey, June 1, 2012.
197. "Invariants of Collective Neutrino Oscillations in Supernovae", Institute for Nuclear Theory, University of Washington, Seattle seminar, July 5, 2012.
198. "Measurement of  $\theta_{13}$  at Daya Bay", Center for Theoretical Underground Physics (CETUP\*) seminar, Lead, SD, July 25, 2012.
199. "Core-collapse Supernovae, Neutrinos, and r-process Nucleosynthesis", SungKyun Kwan University physics seminar, Seoul, South Korea, August 8, 2012.
200. "Neutrinos in Nuclear Physics and Astrophysics", Beihang University Physics Colloquium, Beijing, China, January 9, 2013.
201. "Neutrino Masses and Magnetic Moments", Middle East Technical University Physics Colloquium, Ankara, Turkey, June 17, 2013.

### Ph. D. Students

#### University of Wisconsin degree recipients:

- Janet Seger (graduated in August 1991, current position: Chair and Professor of Physics, Creighton University, Omaha, Nebraska), Thesis title: Pair Production in Intense External Fields.
- Frank Loreti (graduated in May 1993, current position: Senior Analyst, Systems for Market Research, Pittsburgh) Thesis title: Physics of Solar and Supernova Neutrinos.
- Jonathan Bennett (graduated in May 1994, current position: Physics Instructor, Science Charter School University of North Carolina at Chapel Hill) Thesis title: Description of Nuclear Structure Effects in Sub-barrier Fusion by the Interacting Boson Model.
- Alan DeWeerd (graduated in August 1996, current position : Associate Professor of Physics, University of Redlands, California), Thesis title: Studies of Nuclear Fusion Reactions Near the Coulomb Barrier.
- John Beacom (graduated in August 1997, current position: Full Professor, Ohio State University; Director, Center for Cosmology and Astro-Particle Physics), Thesis title: Semiclassical Analysis of Solar Neutrino Data.
- Jonathan Fetter (graduated in May 2000, current position: Web specialist, Epic Systems, Madison) Thesis title: Resonant Active-Sterile Neutrino Conversion and r-Process Nucleosynthesis in Neutrino-Heated Supernova Ejecta.
- Hasan Yuksel (graduated in May 2005, current position: Director's Fellow, Los Alamos National Laboratory), Thesis Title: Constraints on Neutrino Properties from Astrophysical Observations.
- Andrew Plumb (graduated in December 2005, current position: Assistant Professor of Physics, Morningside College), Thesis Title: Semiclassical Methods for Dirac Particles in Curved Spacetime.
- Annelise Malkus (graduated in August 2011, current position: Postdoctoral Fellow, North Carolina State University), Thesis title: An Analysis of Recent Solar Neutrino Data.
- Nicole Vassh (started in August 2010).

#### Balantekin students with degrees from other universities:

- Harry A. Schmitt (University of Arizona. 1988)
- Nurcan Ozturk (Ankara University, 2000)
- Deniz Yilmaz (Ankara University, 2005)
- Yamac Pehlivan (Middle East Technical University, 2004)

**Balantekin's postdoctoral associates**

- Carlos Bertulani (Current position: Professor at Texas A&M University)
- Scott Pratt (Current position: Professor at Michigan State University)
- Yamac Pehlivan (Current position: Associate Professor at Mimar Sinan Fine Arts University)
- Okan Ozansoy (Current position: Associate Professor at Ankara University)
- Joao deJesus (Current position: Director at the INTELi think tank, Lisbon, Portugal)
- Inanc Sahin (Current position: Associate Professor at Bulent Ecevit University)
- Banu Sahin (Current position: Associate Professor at Bulent Ecevit University)

**Undergraduate Honors Thesis Students**

John F. Halter, Cynthia Hess, Kelly Wieand

## Committee Memberships

**International**

- 2013-present: Scientific Council of the International Center for Theoretical Physics (ICTP) Eurasian Center for Advanced Research (ICTP-ECAR).
- 2013-present: International Advisory Committee, Shanghai Jiao Tong University Center for Nuclear Astrophysics.
- 2013: TRIUMF (Canadian National Laboratory of Particle and Nuclear Physics) Senior Theorist Search Committee (Chair).
- 2011-present: Senior Advisory Panel, Journal of Physics G (Institute of Physics, London and Bristol, United Kingdom).
- 2010-2014 : ECT\* (European Center for Theoretical Physics, Trento, Italy) Scientific Board (Chair, 2013-2014).
- 2010: TRIUMF (Canadian National Laboratory of Particle and Nuclear Physics) Senior Theorist Search Committee (Chair).
- 2006-2011: TRIUMF (Canadian National Laboratory of Particle and Nuclear Physics) Advisory Committee (Chair, 2010-2011).
- 2006-present: Japan-U.S. Theory Institute for Physics with Exotic Nuclei (JUSTIPEN) Steering Committee.
- 2005-2008: NSERC (National Research Council of Canada) Major Facilities Access Selection Panel.
- 2005-2010: Editor-in-Chief, Journal of Physics G (Institute of Physics, London and Bristol, United Kingdom).
- 2004-2009: SNOLAB Underground Laboratory Experiment Advisory Committee (Sudbury, Ontario, Canada).
- 2002-2010: Editorial Board, Journal of Physics G (Institute of Physics).
- 1992-1999: International Advisory Committee for the annual Oaxtepec Symposia in Nuclear Physics held in Oaxtepec, Mexico.

**In the United States**

- 2013-present: Facility for Rare Isotope Beams (FRIB) Theory Center Steering Committee
- 2011-2013: American Physical Society (APS) Committee on Constitution and Bylaws
- 2010-2014: FRIB Theory Group (RIATG/FRIBTG) Executive Committee (Chair, 2012-2014)
- 2010: National Institute of Nuclear Theory Senior Fellow Search Committee.
- 2009-2010: APS Budget Committee
- 2009: APS Investments and Business Models Task Force

- 2007-2009: APS Executive Board.
- 2006-2010: National Institute of Nuclear Theory (University of Washington) Advisory Committee (Chair, 2008-present).
- 2006-2009: APS Division of Nuclear Physics Councillor.
- 2006-2007 : Organizing Committees for the Town Meetings for the Nuclear Science Long-Range Planning Process: i) “Neutrino Physics”, Santa Fe, November 2006, ii) “Neutrinos, Neutrons, and Fundamental Symmetries”, Chicago, January 2007.
- 2006: APS George E. Valley Prize Selection Committee (Chair).
- 2005: APS Division of Nuclear Physics Fellowship Committee (Chair)
- 2003-2004: Department of Energy/National Science Foundation Nuclear Science Advisory Committee
- 2003: APS Division of Nuclear Physics Dissertation Award Selection Committee (Chair)
- 2002-2005: National Underground Science Laboratory Collaboration Executive Committee.
- 2002-2006 : Lawrence Berkeley National Laboratory Nuclear Science Division Visiting Committee. (Chair; 2004-2006)
- 2002: Los Alamos National Laboratory Particle and Nuclear Physics LDRD Panel.
- 2002-2004 APS Forum on International Science Executive Committee.
- 2001, 2003: Physical Sciences review panel for the Cooperative Grants Program of the US Civilian Research and Development Foundation (CRDF).
- 2001-2005 : Division of Nuclear Physics of APS; Vice-Chair, 2001-2002; Chair-Elect, 2002-2003; Chair, 2003-2004; Past-Chair, 2004-2005
- 2001- : Oak Ridge Laboratory for Neutrino Detectors (ORLaND) Advisory Committee.
- 2001-2002 : Division of Nuclear Physics Program Committee, Vice-Chair 2001, Chair, 2002.
- 2000 : Organizing Committees for the Town Meetings for the Nuclear Science Long-Range Planning Process: i) Neutrino Physics, Seattle, September 2000; ii) “Astrophysics, Neutrinos, and Symmetries”, Oakland, November 2000.
- 2000-2003: Division of Nuclear Physics Home Page Committee; DNP Webmaster.
- 1999-2001 : Bethe Prize Selection Committee, Divisions of Nuclear Physics and Astrophysics, American Physical Society.
- 1997-1999 : National Science Foundation Theoretical Physics Special Interest Panel, (Chair in 1999).
- 1997-2000 : Editorial Board, Physical Review C.
- 1997-2002 : Steering Committee, National Nuclear Physics Summer School; Vice-Chair, 1998-2000; Chair, 2000-2002.
- 1996-1998 : Fellowship Committee of the Division of Nuclear Physics, American Physical Society.

- 1996 : Physics News Committee of the Division of Nuclear Physics, American Physical Society.
- 1995-2010: Triangle Universities (Duke U., U. North Carolina at Chapel Hill, North Carolina State U. at Raleigh) Nuclear Laboratory Advisory Committee.
- 1995- : Chairperson, University of Washington at Seattle Center for Nuclear Physics and Astrophysics (CENPA) Advisory Committee.
- 1995 : Steering Committee for the U.S. Nuclear Science Advisory Committee Town Meeting on Electroweak Interactions, Astrophysics, and Non-Accelerator Experiments.
- 1994-1996 : Executive Committee of the Division of Nuclear Physics, American Physical Society.
- 1994 : Department of Energy Nuclear Physics Review Panel.
- 1994 : Chairperson, Organizing Committee, International Workshop on Strategies of the Detection of Dark Matter Particles, Berkeley.
- 1993-1994 : Chairperson, Bonner Prize Selection Committee, Division of Nuclear Physics, American Physical Society.
- 1993-1994 : Chair, Nuclear Theory Section, International Science Foundation Physics Panel (for supporting research at Former Soviet Union).
- 1992-1993 : Vice-Chairperson, Bonner Prize Selection Committee, Division of Nuclear Physics, American Physical Society.
- 1992-1994 : Steering Committee for the National Nuclear Physics Summer School.
- 1989 : Drafting Committee for the 1989 Long Range Plan for Nuclear Theory (prepared for the American Physical Society, Division of Nuclear Physics and Nuclear Science Advisory Committee).
- 1989 : National Science Foundation Panel on Teacher Enhancement Programs in Pre-college Science and Mathematics Education.
- 1987-1988 : Program Committee of the American Physical Society Topical Group on Few Body Systems and Multiparticle Dynamics.
- 1986 : Organizing Committee for Workshop on Intermediate Energy Heavy Ion Physics, Oak Ridge National Laboratory.

### University of Wisconsin

1988-1989 : Faculty Senate Alternate  
 1989-1993 : Faculty Senate  
 1992-1993 : Wisconsin/Hilldale Undergraduate/Faculty Research Awards  
                   Physical Sciences Selection Committee  
 1995-1999 : Graduate School Research Committee  
 2010:         Statistics Department Review Committee  
 2010-2014: University Library Committee

### U. Wisconsin Physics Department

1986-1987 : Admissions and Fellowships Committee,  
 1987-1988 : Admissions and Fellowships Committee,  
                   Physics Library Facilities Committee,  
                   Secretary of the Faculty Meetings.  
 1988-1989 : Physics Library Facilities Committee (Chair),  
                   Graduate Program Committee,  
                   Graduate Program Advisor for Theoretical Physics,  
 1989-1990 : Physics Library Facilities Committee (Chair),  
                   Departmental Tours Committee (Chair),  
                   Adhoc Salary Policy Committee,  
                   Research Capital Committee,  
                   Special Lectures Committee,  
 1990-1991 : Research Capital Committee (Chair),  
                   Colloquium Committee (Chair),  
                   Salaries Committee,  
                   Departmental Tours Committee,  
                   Special Lectures Committee,  
 1991-1992 : Salaries Committee,  
                   Research Capital Committee,  
                   Colloquium Committee (Chair),  
                   Special Lectures Committee,  
 1992-1993 : Graduate Admissions Committee (Chair),  
                   Research Capital Committee,  
                   Physics Library Facilities Committee,  
                   Graduate Program Advisor for Theoretical Physics  
 1993-1994 Faculty Recognition Committee (Chair),  
                   Research Capital Committee,  
                   Physics Library Facilities Committee,  
                   Graduate Program Advisor for Theoretical Physics



- 1994-1995 Physics Library Facilities Committee,  
Graduate Program Advisor for Theoretical Physics
- 1995-1996 New Staff Committee (Chair)  
Qualifying Exam Committee (Chair)  
Graduate Program Advisor for Theoretical Physics
- 1996-1997 New Staff Committee (Chair)  
Salaries Committee  
Colloquium Committee  
Graduate Program Advisor for Theoretical Physics
- 1997-1998 On Sabbatical Leave
- 1998-1999 Salary Committee (Chair)  
New Staff Committee  
Introductory Courses/Labs
- 1999-2000 Physics Council  
Introductory Courses/Labs
- 2000-2001 Physics Council  
Introductory Courses/Labs
- 2001-2002 Physics Council  
Preliminary Exam
- 2002-2003 Physics Library (Chair)  
New Staff  
Introductory Courses  
Graduate Program
- 2003-2004: New Staff  
Introductory Courses/Labs (Chair)
- 2005-2006: Physics Library (Chair)  
New Staff
- 2006-2007: Faculty and Staff Recognition (Chair)  
New Staff  
Personnel (Non-Faculty)  
TA Policy and Review
- 2007-2008: Chair-Elect  
Physics Council  
Faculty Recognition  
Personnel (Non-Faculty)  
Salaries
- 2008-2009: Chair  
Physics Council
- 2009-2010: Chair  
Physics Council
- 2010-2011: Chair  
Physics Council

2011-2012: On sabbatical leave

2012-2013: Colloquium  
Faculty & Staff Recognition

## Conference Organization

**Chair of the Organizing or Steering Committees**

1. National Summer School in Nuclear Physics, Madison, WI, 1991.
2. Chair (Vice-Chair) for the 1995 (1993) Gordon Research Conference on Nuclear Physics.
3. International Workshop on Strategies of the Detection of Dark Matter Particles, Berkeley, CA, 1994.
4. Program on Neutrino Astrophysics, National Institute for Nuclear Theory (INT) Seattle, 1994 (with John Bahcall).
5. U.S.-Japan Seminar on Symmetry Principles in Many-Body Phenomena, Honolulu, HI, 1999 (with T. Otsuka).
6. Program on Low-Energy Neutrino Physics, INT, Seattle, WA, 1999 (with S. Freedman).
7. Conference on Underground Science, Lead, South Dakota, 2001.
8. Meeting on Nuclear Physics with Neutrinos, European Center of Theoretical Nuclear Physics and Related Areas (ECT\*) Trento, Italy, 2001.
9. Summer School on Neutrino Physics and Astrophysics Istanbul, Turkey, 2002
10. Workshop on "Blueprints for the Nucleus: From First Principles to Collective Motion", Istanbul, Turkey, 2004.
11. Workshop on Neutrino Astrophysics, Maui, HI, 2005 (with T. Kajino).
12. Program on Underground Physics, INT, Seattle, WA, 2005 (with V. Berezinsky, K. Schoelberg, and J. Wilkerson).
13. International Workshop on Weak Interactions in Nuclei and Astrophysics: Standard Model and Beyond, ECT\*, Trento, Italy, 2005 (with C. Volpe).
14. International Workshop on Fundamental Symmetries: from Nuclei and Neutrinos to the Universe, ECT\*, Trento, Italy, 2007 (with C. Volpe).
15. International Conference on Neutrinos and Dark Matter 2009 (NDM09), Madison, WI U.S.A (with K. Heeger).
16. Workshop on Physics of Exotic Nuclei, Waikoloa, Hawaii, 2009 (with W. Nazarewicz).
17. JUSTIPEN Workshop in Wako, Japan, 2009 with T. Papenbrock).

18. Workshop on "The Future of Neutrino Mass Measurements: Terrestrial, Astrophysical, and Cosmological Measurements in the Next Decade", Seattle, 2010 (with Karsten Heeger, Steen Hannestad, and Eric Linder).
19. ECT\* Doctoral Training Programme 2011; Neutrinos in Nuclear-, Particle- and Astrophysics, April 11 - June 17, 2011, Trento, Italy (with Cristina Volpe and Christian Weinheimer).
20. The Center for Theoretical Underground Physics and Related Areas (CETUP\*) program, June 20 - July 8, 2011 at Lead, South Dakota (with B. Szczerbinska).
21. The Center for Theoretical Underground Physics and Related Areas (CETUP\*) program, July 10 - August 1, 2012 at Lead, South Dakota (with B. Szczerbinska, K. Babu, B. Dutta, R.N. Mohapatra).
22. Second Annual Low-Energy Community Meeting, August 17-18, 2012 at Michigan State University (with C. Gross, R. Clark, D. Hartley, P. Fallon, D. Radford, W. Nazarewicz, G. Savard, H. Schatz, B. Sherrill, M. Smith, and I. Wiedenhoever).
23. The Center for Theoretical Underground Physics and Related Areas (CETUP\*) neutrino program, July 15 -26, 2013 at Lead, South Dakota (with B. Szczerbinska and K. Babu).
24. Third Annual Low-Energy Community Meeting, August 23-24, 2013 at Michigan State University (with C. Gross, R. Clark, P. Fallon, W. Nazarewicz, G. Savard, H. Schatz, B. Sherrill, M. Smith, and I. Wiedenhoever).

#### **International Scientific Advisory Committees for Conferences**

1. Annual Oaxtepec Symposia in Nuclear Physics, Oaxtepec, Mexico 1992-1999.
2. 5th International Wigner Symposium, Vienna, Austria, 1997.
3. National Nuclear Physics Summer School (1997: New Haven, CT; 1998: Gull Lake, MI; 1999: San Diego, CA; 2000: Santa Cruz, CA; 2001: Bar Harbor, MI; 2002: Santa Fe, NM).
4. 6th International Wigner Symposium, Istanbul, Turkey, 1999.
5. International Conference FUSION03: From a Tunneling Nuclear Microscope to Nuclear Processes in Matter, Sendai, Japan, 2003.
6. International Symposium on Origin of Matter and Evolution of Galaxies (OMEG05)-New Horizon of Nuclear Astrophysics and Cosmology, Tokyo, Japan, 2005.
7. TeV Particle Astrophysics II Workshop, Madison, Wisconsin, 2006.
8. 23rd International Nuclear Physics Conference, INPC2007, Tokyo, Japan, 2007.

9. 10th International Symposium on Origin of Matter and Evolution of Galaxies (OMEG07)-From the Dawn of Universe to the Formation of Solar System, Sapporo, Japan, 2007.
10. Nuclear Physics and Astrophysics: From Stable Beams to Exotic Nuclei, Cappadocia, Turkey, 2008.
11. Hokudai-TORIJIN-JUSTIPEN-EFES Workshop on Exotic Nuclei, Hakodate, Japan, 2008.
12. 7th International Conference on "Nuclear and Radiation Physics", Almaty, Kazakhstan. 2009.
13. International Symposium on Origin of Matter and Evolution of Galaxies (OMEG09), Osaka, Japan 2010.
14. 10th International Spring Seminar on Nuclear Physics "New Quests in Nuclear Structure", Vietri sul Mare, Italy, 2010.
15. Pan-American Advanced Studies Institute (PASI) on the "Physics of Rare Isotopes", Joao Pessoa, Brazil, 2010.
16. International Workshop on Sterile Neutrinos at the Crossroads, Virginia Tech, September 2011.
17. International Workshop on Origin of Matter and Evolution of Galaxies (OMEG11), November 14-17, 2011 in Wako, Japan.
18. International Conference on Beauty in Physics: Theory and Experiment, Hacienda Cocoyoc, Morelos, Mexico, May 14-18, 2012.
19. Symposium on "Horizons on Innovative Theories, Experiments, and Supercomputing in Nuclear Physics," New Orleans, June 4-7, 2012.
20. Shanghai International Summer School of Neutrinos and Dark Matter (SSNuDM), Shanghai Jiao Tong University (SJTU), Shanghai, China, Sep. 17-20, 2012.

### Other Professional Activities

- Various DOE and NSF review panels.
- Member, Daya Bay Reactor Neutrino Physics Collaboration.
- Board of Overseers, Deep Underground Science and Engineering Laboratory (DUSEL) at Homestake, South Dakota.
- Neutrino Parallel Session Coordinator for the PANIC (Particles and Nuclei in Collision) Conference, October 2005, Santa Fe.
- Member, National Underground Science Laboratory Collaboration.

- Neutrino Parallel Session Coordinator for the Intersections between Nuclear and Particle Physics Conference, May 2000, Canada.
- Consultant for Oak Ridge National Laboratory (1986-present).
- Reviewer for research grants submitted to the U.S. National Science Foundation, U.S. Department of Energy, U.S. National Research Council, U.S.-Israel Binational Science Foundation, and Australian Research Council.
- Referee for the journals *Annals of Physics*, *Canadian Journal of Physics*, *International Journal of Modern Physics*, *Journal of Mathematical Physics*, *Modern Physics Letters*, *Physical Review (A, C and D)*, *Physical Review Letters*, *Physics Letters*, *Science*, and *Zeitschrift für Physik*.
- Reviewer for American Institute of Physics Press, Academic Press, Gordon and Breach, John Wiley and Sons, Pergamon Press, Oxford University Press, and Mathematical Reviews.
- External thesis examiner for the Université de Montréal, Université de Paris-Sud, Rhodes University (South Africa) and University of Melbourne.
- Founding organizer of the Midwest Nuclear Theory Workshop Series, starting in Madison, September 1988.

## Courses Taught at the University of Wisconsin

Fall 1986: Phys 731, Quantum Mechanics I  
Spring 1987: Phys 732, Quantum Mechanics II  
Fall 1987: Phys 731, Quantum Mechanics I  
Spring 1988: Phys 732, Quantum Mechanics II  
Phys 799, Independent Study (Computational Physics)  
Fall 1988: Phys 742, Theoretical Nuclear Physics  
Spring 1989: Phys 832, Advanced Quantum Mechanics  
Fall 1989: Phys 601, Phys 109  
Spring 1990: Phys 109, Physics in the Arts  
Fall 1990: Phys 109, Physics in the Arts  
Spring 1991: Phys 731, Quantum Mechanics I  
Fall 1991: Phys 732, Quantum Mechanics II  
Spring 1992: Phys 109, Physics in the Arts  
Fall 1992: Phys 109, Physics in the Arts  
Spring 1993: Phys 801, Topics in Theoretical Astrophysics  
Fall 1993: Phys 109, Physics in the Arts  
Phys 741, Experimental Nuclear Physics  
Spring 1994: Phys 601, Scientific Presentation  
Fall 1994: Phys 801, Particle Astrophysics and Cosmology  
Spring 1995: Phys 109, Physics in the Arts  
Fall 1995: Phys 109, Physics in the Arts  
Spring 1996: Phys 801, Finite Temperature Field Theory in Astrophysics  
Fall 1996: Phys 109, Physics in the Arts  
Spring 1997: Phys 109, Physics in the Arts  
Fall 1998: Phys 109, Physics in the Arts  
Spring 1999: Phys 109, Physics in the Arts  
Fall 1999: Phys 109, Physics in the Arts  
Fall 2000: Phys 109, Physics in the Arts  
Spring 2001: Phys 109, Physics in the Arts  
Fall 2001: Phys 202, General Introductory Physics  
Spring 2002: Phys 109, Physics in the Arts  
Fall 2002: Phys 109, Physics in the Arts  
Spring 2003: Phys 715, Statistical Mechanics  
Fall 2003: Phys 801, Neutrino Astrophysics and Cosmology  
Spring 2004: Phys 109, Physics in the Arts  
Fall 2005: Phys 109, Physics in the Arts  
Spring 2006: Phys 109, Physics in the Arts  
Fall 2006: Phys 731, Quantum Mechanics I  
Spring 2007: Phys 109, Physics in the Arts

Spring 2008: Phys 109, Physics in the Arts  
Spring 2009: Phys 601, Scientific Presentation  
Spring 2010: Phys 805, Algebraic Methods in Physics  
Spring 2011: Phys 601, Scientific Presentation  
Fall 2012: Phys 109, Physics in the Arts  
Spring 2013: Phys 109, Physics in the Arts