Scott Pratt

October 2, 2012

Personal Information

Present Position:

Associate Chair, Director of Graduate Studies and Professor of Physics,
Department of Physics and Astronomy, Michigan State University
Joint Appointment: Theoretical Nuclear Physics Faculty,
National Superconducting Cyclotron Laboratory

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Previous Positions:

Research Assistant Professor:	
August 1994 - February 1995	Wayne State University
Visiting Assistant Professor:	
September 1992 - August 1994	Michigan State University
Lecturer and Assistant Scientist:	
January 1989 - September 1992	University of Wisconsin
Research Associate:	
Nov. - Dec. 1988	Niels Bohr Institute, Copenhagen
Sep. - Oct. 1988	University of Lund, Sweden
Jan. - Aug. 1987	Oregon State University
Jun. 1986 - Dec. 1987	University of Tennessee
Nov. 1985 - May 1986	Texas A. & M.

Education:

1976	High School Diploma, Overland Park, Kansas.
1980	B.S. in Physics, University of Kansas, Lawrence.
1985	Ph.D. in Theoretical Nuclear Physics, University of Minnesota.

1 RESEARCH

1.1 Summary

- Nuclear and particle interferometry: Developed interferometric formalism to allow classical simulations to make predictions for two-particle observables. Clarified the ability of correlations measurements to determine size, lifetime and collective expansion of a heavy ion reaction which has been applied for dozens of particle-type pairs, and from low energy (compound nucleus) through the range of NSCL energies and up through highly relativistic energies. Have collaborated closely with experimental groups to develop correlations phenomenology into six-dimensional test of heavy-ion dynamics. Recently developed methods for determining shape and lifetime information from non-identical particle correlations.

- Development of methods to handle the $N!$-problems in calculating Bose and Fermi effects for finite systems. This has allowed one to understand symmetrization effects for spectra, correlations, multiplicity distributions and isospin observables.

- Dynamics of heavy-ion collisions, including Boltzmann, cascade and viscous hydrodynamics. Special attention to the source and manifestations of both bulk and shear viscosity.

- Developed recursive techniques for canonical ensembles which can be used on broad of problems in nuclear physics: level densities at high excitation, statistical multifragmentation, pion flavor distributions, parton gas in a finite volume, Monte Carlo procedures with charge conservation. Recursive methods allow exact solution (no Monte Carlo) and thus allow investigation of rare processes, e.g. rare isotope production.

- Developed charge balance functions as means for exploring hadronization mechanisms and identifying the relevant degrees of freedom in relativistic heavy ion collisions.

- Worked on a variety of other topics in heavy ion physics: The pion dispersion relation in nuclear matter, statistical and dynamical models of nuclear fragmentation, nuclear temperature measurements, chemical evolution in relativistic collisions, rapidity correlations, coalescence, effective thermodynamics of transport theory.

- Other areas: Cascading systems (sandpiles and word wrap), pionic fusion, isospin fluctuations in pp collisions and cosmic ray events.

- In October 2009, began cross-disciplinary project for comparing sophisticated models to large heterogenous data sets. PI of MADAI collaboration which spans several fields of science, statistics and visualization, and has members at MSU, Duke and the University of North Carolina. Project funded by Cyber-Enabled Discover and Innovation grant from NSF.

1.2 Federal Funding

For current year, is PI on two federal grants totaling $547K.

- CDI grant from NSF$450K/year (for four years).
  Grant includes several PIs across three institutions.
- DOE theory, single-investigator, $97K

PI, NSF grant, *Phenomenology of Heavy Ion Collisions*	May, 1996	$20K
co-PI, NSF grant, *Nuclear Reactions and Nuclear Structure* with W. Bauer, B.A. Brown, P. Danielewicz and V. Zelevinsky	June, 1997	$340K
	June, 1998	$390K
	June, 1999	$390K
PI, NSF grant, *Heavy Ion Reactions at the Energy and Isospin Frontiers* with W. Bauer and P. Danielewicz	June, 2000	$240K
	June, 2001	$240K
	June, 2002	$240K
PI, DOE grant, *Investigating Novel States of Matter at RHIC*	July, 2003	$70K
	July, 2004	$70K
	July, 2005	$70K
PI, DOE grant, *Investigating Novel States of Matter at RHIC*	July, 2006	$63K
	June, 2007	$90K
	June, 2008	$90K
	June, 2009	$98K
	June, 2010	$97K
	June, 2011	$97K
	June, 2012	$97K
PI, NSF Grant from Cyber-Enabled Discovery and Innovation Program, *From Models and Data to Knowledge and Understanding*	Oct., 2009 - Sep. 2013	$1.8M

1.3 Publications and Talks

1.4 Books Edited

1. Particle correlations and femtoscopy, Proceedings, 2nd Workshop, WPCF 2006, Sao Paulo, Brazil, September 9-11, 2006. Sandra S. Padula and, Scott Pratt, (ed.s), published in Braz. J. Phys. 37 (2007) 871-1072.

2. Proceedings, 26th Winter Workshop on Nuclear Dynamics, Ocho Rios, Jamaica, January 2010, ed.s R. Bellwied, R. Lacey, and S. Pratt.

1.4.1 Submitted Papers

1. "Constraining the initial temperature and shear viscosity in a hybrid hydrodynamic model of $\sqrt{s_{NN}}$=200 GeV Au+Au collisions using pion spectra, elliptic flow, and femtoscopic radii", R. A. Soltz, I. Garishvili, M. Cheng, B. Abelev, A. Glenn, J. Newby, L. A. L. Levy and S. Pratt, arXiv:1208.0897 [nucl-th] (2012).

1.4.2 Refereed Publications and Review Articles

1. "Investigating the Quark Gluon Plasma with Heavy Ion Collisions", Prairie Section of the APS, November, 2012.

2. "Identifying the Charge Carriers of the Quark Gluon Plasma", Scott Pratt, Physical Review Letters **108**, 212301 (2012).

3. "Viscous Hydrodynamics and Relativistic Heavy Ion Collisions, Joshua Vredevoogd and Scott Pratt, submitted to Physical Review C**85** 044908 (2012).

4. "General Charge Balance Functions, A Tool for Studying the Chemical Evolution of the Quark-Gluon Plasma", S. Pratt, Physical Review C**85**, 014904 (2012), arXiv:1109.3647 [nucl-th].

5. "Charge conservation at energies available at the BNL Relativistic Heavy Ion Collider and contributions to local parity violation observables," S. Schlichting and S. Pratt, Phys. Rev. **C83**, 014913 (2011).

6. "Effects of Momentum Conservation and Flow on Angular Correlations at RHIC" S. Pratt, S. Schlichting and S. Gavin, Phys. Rev. C **84**, 024909 (2011).

7. "Coupling Relativistic Viscous Hydrodynamics to Boltzmann Descriptions", S. Pratt and G. Torrieri, Phys. Rev. **C82**, 044901 (2010).

8. "Universal Flow in the First fm/c at RHIC", J. Vredevoogd and S. Pratt, Proceedings of Quark mMatter 2009, Nucl. Phys. A **830**, 515C (2009).

9. "Three-Dimensional two-pion source image from Pb+Pb Collisions at $\sqrt{s_{NN}}$=17.3 GeV: New constraints for source breakup dynamics", C. Alt, et al., Phys. Lett. **B685**, 41-46 (2010).

10. "The Long Slow Death of the HBT Puzzle", S. Pratt, Proceedings for QM 2009, Nucl. Phys. **A830**, 51c (2009), arXiv:0907.1094 [nucl-th] (2009).

11. "Resolving the HBT Puzzle in Relativistic Heavy Ion Collisions", S. Pratt, Phys. Rev. Lett. **102**, 232301 (2009).

12. "The Long Slow Death of the HBT Puzzle", S. Pratt, Proceedings of the Fourth Workshop on Particle Correlations and Femtoscopy (WPCF 2008), Crakow, Poland, Sep 2008, Acta Phys.Polon **B40** (2009), arXiv.org:0812.4714.

13. "Universal Flow in the First Stage of Relativistic Heavy Ion Collisions", J. Vredevoogd and S. Pratt, Phys. Rev. C **79**, 044915 (2009).

14. "Sonic booms at 10^{12} kelvin", S. Pratt, Viewpoint, Physics **1**, 29 (2008).

15. "Femtoscopy in Relativistic Heavy Ion Collisions and its Relation to Bulk Properties of QCD Matter", S. Pratt and J. Vredevoogd, Physical Review C**78**, 054906, arXiv:nucl-th/0809.0516.

16. "Femtoscopically Probing the Freeze-out Configuration in Heavy Ion Collisions", M.A. Lisa and S. Pratt, Relativistic Heavy Ion Collisions, in Landoldt-Boernstein Reviews, ed. R. Stock, arXiv:nucl-ex 0811.1352.

17. "Viscosity at RHIC: theory and practice", S. Pratt, Proceedings of 24th Winter Workshop on Nuclear Dynamics, ed. R. Bellwied, to be published by EP Systema, Budapest, arXiv:nucl-th 0809.0089 (2008).

18. "Formulating viscous hydrodynamics for large velocity gradients", S. Pratt, Phys. Rev. C**77**, 024910 (2008).

19. "Interpreting scattering wave functions in the presence of energy-dependent interactions", S. Pratt, Phys. Rev. C**77**, 011901 (2008).

20. "Extending the reach of hydrodynamics", S. Pratt, Proceedings for Zimanyi '75 in Budapest, arXiv:nucl-th 0710.5736, to appear in European Physics J (2008).

21. "Tsunamis, viscosity and the HBT puzzle", S. Pratt, Proceedings for Strangeness in Quark Matter 2007 in Levoca, Slovakia, J. Phys. G **35**, 044035 (2008), arXiv:0710.5733.

22. "Zipf's law in nuclear multifragmentation and percolation theory", K. Paech, W. Bauer and S. Pratt, Phys.Rev.C**76**, 054603 (2007).

23. "Zipf's Law and the Universality Class of the Fragmentation Phase Transition", W. Bauer, S. Pratt, and B. Alleman, AIP Conference Proceedings Volume 884, p. 327 (2007).

24. "Analyzing Correlation Functions with Spherical and Cartesian Harmonics", S. Pratt and P. Danielewicz, Phys. Rev. C**75**, 034907 (2007).

25. "A co-moving coordinate system for relativistic hydrodynamics", S. Pratt, Phys. Rev. C**75**, 024907 (2007).

26. "Status and Promise of Two-Particle Correlations", S. Bekele, F. Braghin, Z. Chajęcki , P. Chung, J.G. Cramer, T. Csörgő, H. Eggers, S. Gavin, F. Grassi, Y. Hama, A. Kisiel, C.-M. Ko, T. Koide, G. Krein, R. Lacey, R. Lednicky, M.A. Lisa, W. Metzger, D. Miśkowiec, K. Morita, S.S. Padula, S. Pratt, W.-L. Qian, V. Šimak, Y. Sinyukov, M. Šumbera, B.M. Tavares, G. Verde, D. Zschiesche, to be published by Brazilian Journal of Physics (2007).

27. "Shapes and Sizes from Non-Identical-Particle Correlations", S. Pratt, Proceedings of Workshop on Particle Correlations and Femtoscopy, Sao Paulo, to be published by Brazilian Journal of Physics (2007), nucl-th/0612006.

28. "Viscosity at RHIC", S. Pratt and K. Paech, Proceedings of the 22nd Winter Workshop on Nuclear Dynamics, W. Bauer, R. Bellwied, editors, ISBN: 963 86934 1 X, EP Systema, Budapest (2006).

29. "Origins of bulk viscosity in relativistic heavy ion collisions", K. Paech and S. Pratt, Phys.Rev. C **74**, 014901 (2006).

30. "Refractive Distortions of Two-Particle Correlations from Classical Trajectory Calculations", S. Pratt, Phys. Rev. C **73**, 024901 (2006).

31. "Refractive Distortions of Two-Particle Correlations", S. Pratt, Proceedings of 35th International Symposium on Multiparticle Dynamics (ISMD 05), Kromeriz, Czech Republic, AIP Conf.Proc.828:213-218 (2006).

32. "Is HBT really puzzling?", S. Pratt and D. Schindel, Proceedings of Workshop on Particle Correlations and Femtoscopy (WPCF 2005), Kromeriz, Czech Reupublic, 15-17 Aug 2005, AIP Conf.Proc.828:430-435 (2006).

33. "Correlation Functions, Getting into Shape", S. Pratt, Proceedings of the 21st Workshop on Nuclear Dynamics, Breckenridge, Co, Acta Phys.Hung. **A25** (2006).

34. "Angular moment analysis of correlations", P. Danielewicz and S. Pratt, Proceedings of 21st Winter Workshop in Nuclear Dynamics, Breckenridge, Co, Acta Phys.Hung. **A25** (2006).

35. "Femtoscopy in relativistic heavy ion collisions", M.A. Lisa, S. Pratt, R. Soltz and U. Wiedemann, Ann. Rev. Nucl. Part. Sci. **55**, 357-402 (2005).

36. D. A. Brown, A. Enokizono, M. Heffner, R. Soltz, P. Danielewicz and S. Pratt, "Imaging Three Dimensional Two-particle Correlations for Heavy-Ion Reaction Studies", Phys. Rev. C**72**, 054902 (2005).

37. "Analysis of Low-Momentum Correlations with Cartesian Harmonics", P. Danielewicz and S. Pratt, Phys. Lett. B, **618**, 60 (2005).

38. "Quark Recombination and Elliptic Flow", S. Pratt and S. Pal, Phys. Rev. C**71**, 014905 (2005).

39. "Towards the 3D-Imaging of Sources", P. Danielewicz, D.A. Brown, M.Heffner, S. Pratt and R. Soltz, Proceedings of the International Workshop on Hot and Dense Matter in Relativistic Heavy Ion Collisions, Budapest Hugary, March 2004, Acta Phys.Hung.A22:253-262 (2005).

40. "Statistical and Dynamic Models of Charge Balance Functions", S. Cheng, S. Petriconi, S. Pratt, M. Skoby, C. Gale, S. Jeon, V. Topor Pop and Q.-H. Zhang, Phys. Rev. C**69**, 054906 (2004).

41. "Entropy Production at RHIC", S. Pal and S. Pratt, Phys. Lett. B **578**, 310 (2004).

42. "Bringing the Balance Function into Focus", Proceedings of the 19th Winter Workshop on Nuclear Dynamics, Acta Phys.Hung.A21:255-260 (2004).

43. "Thermal Production of the ρ Meson in the $\pi^+\pi^-$ Channel", S. Pratt and W. Bauer, Phys. Rev. C**68**, 064905 (2003).

44. "Alternative Size and Lifetime Measurements for High-Energy Heavy-Ion collisions", S. Pratt and S. Petriconi, Phys. Rev. C**68**, 054901 (2003).

45. "Finding the Remnants of Lost Jets at RHIC", S. Pal and S. Pratt, Phys.Lett. B**574**,21 (2003).

46. "The Quark Gluon Plasma in a Finite Volume", S. Pratt and J. Ruppert, Phys. Rev. C**68**, 024904 (2003).

47. "Removing Distortions from Charge Balance Functions", S. Pratt and S. Cheng, Phys. Rev. C**68**, 014907 (2003).

48. " Comparison of Source Images for Protons, π^-s and Λs in 6A GeV Au+Au Collisions", P. Chung, N.N. Ajitanand, J.M. Alexander, M. Anderson, D. Best, F.P. Brady, T. Case, W. Caskey, D. Cebra, J.L. Chance, B. Cole, K. Crowe, A. C. Das, J.E. Draper, M.L. Gilkes, S. Gushue, M. Heffner, A.S. Hirsch, E.L. Hjort, L. Huo, M. Justice, M. Kaplan, D. Keane, J.C. Kintner, J. Klay, D. Krofcheck, R.A. Lacey, J. Lauret, M.A. Lisa, H. Liu, Y.M. Liu, R. McGrath, Z. Milosevich, G. Odyniec, D.L. Olson, S. Panitkin, N.T. Porile, G. Rai, H.G. Ritter, J.L. Romero, R. Scharenberg, B. Srivastava, N.T. B Stone, T.J. M. Symons, J. Whitfield, R. Witt, L. Wood, W.N. Zhang, S. Pratt, F. Wang, and P. Danielewicz, Phys. Rev. Lett. **91**, 162301 (2003).

49. "Isospin Fluctuations from a Thermally Equilibrated Gas", S. Cheng and S. Pratt, Phys. Rev. C**67**, 044904 (2003).

50. "Correlations and Fluctuations, a Summary of Quark Matter 2002", S. Pratt, Nucl. Phys. A**715**, 389 (2003).

51. "Balance Functions, Correlations, Charge Fluctuations and Interferometry", S. Jeon and S. Pratt, Phys. Rev. C65, 044902 (2002).

52. "The effect of finite-range interactions in classical transport theory", S. Cheng, S. Pratt, P. Csizmadia, Y. Nara, D. Molnar, M. Gyulassy, S.E. Vance and B. Zhang, Phys. Rev. C**65**, 024901 (2002).

53. "Event-by-Event Analysis of Proton-Induced Nuclear Multifragmentation: Determination of Phase Transition Universality-Class in System with Extreme Finite-Size Constraints", M.Kleine Berkenbusch, W. Bauer, K. Dillman, S. Pratt, L. Beaulieu, K. Kwiatkowski, T. Lefort, W.-c. Hsi, V. Viola, S. J. Yennello, R. G. Korteling and H. Breuer, Phys. Rev. Lett. **88**, 022701 (2002).

54. "Balance functions: a signal of late hadronization", S. Pratt, Nucl. Phys. A**698**, 531 (2002).

55. "Quantum corrections for pion correlations involving resonance decays", S. Cheng and S. Pratt, Phys. Rev. C**63**, 054904 (2001).

56. "Rare isotope production in statistical multifragmentation", S. Pratt, W. Bauer, C. Morling and P. Underhill, Phys. Rev. C**63** 034608 (2001).

57. "Clocking hadronization in relativistic heavy ion collisions with balance functions", S. Bass, P. Danielewicz and S. Pratt, Phys. Rev. Lett. **85**, 2689 (2000).

58. "Statistical calculations of nuclear fragment distributions", S. Pratt and S. Das Gupta, Phys. Rev. C**62**, 044603 (2000).

59. "Canonical and Microcanonical Calculations for Fermi Systems", S. Pratt, Phys. Rev. Lett. **84**, 4255 (2000).

60. "Multiple pion production from an oriented chiral condensate", A. Volya, S. Pratt and V. Zelevinsky, Nucl. Phys. **A617**, 643 (2000).

61. "Lambda-proton correlations in relativistic heavy ion collisions", F. Wang and S. Pratt, Phys. Rev. Lett. **83**, 3138 (1999).

62. "Using Compton scattering to explore the pion dispersion relation", A. Volya, K. Haglin, S. Pratt and V. Dmitriev, J. Phys. G.**25**, 2049 (1999).

63. "Phase space overpopulation and chiral symmetry restoration in relativistic heavy ion collisions", Scott Pratt and Kevin Haglin, Phys. Rev. C**59**, 3304 (1999).

64. "Size Matters: Origin of Binomial Scaling in Nuclear Fragmentation Experiments", Wolfgang Bauer and Scott Pratt, Phys. Rev. C**59** 2695 (1999).

65. "Modeling Pionic Fusion", Alexander Volya, Scott Pratt and Vladimir Zelevinsky, Phys. Rev. C**59**, 305 (1999).

66. "Fragment Multiplicity Distributions, a Signal of True Nuclear Multifragmentation", T. Gharib, W. Bauer and Scott Pratt, Phys. Lett. B**444**, 231 (1998).

67. "Modeling the breakup stage of relativistic heavy ion collisions", S. Pratt and J. Murray, Phys. Rev. C**57**, 1907 (1998).

68. "Examining the Cooling of Hot Nuclei", H. Xi, M.J. Huang, W.G. Lynch, S.J. Gaff, C.K. Gelbke, T. Glasmacher G.J. Kunde, L. Martin, C.P. Montoya, S. Pratt, M.B. Tsang, W.A. Friedman, P.M. Milazzo, N. Colonna, L. Celano, G. Tagliente, M.D'Agostino, M. Bruno, M.L. Fiandri, F. Gramegna, A. Ferrero, I. Iori, A. Moroni, F. Petruzzelli, Phys. Rev. C**57**, R462 (1998).

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70. "Validity of the smoothness assumption for calculating two-boson correlations in high-energy collisions", S. Pratt, Phys. Rev. C**56** 1095 (1997).

71. "Two-Particle and Multi-Particle Measurements for the Quark-Gluon Plasma", *Physics of the Quark-Gluon Plasma*, ed. R. Hwa, World Scientific (1996).

72. "Word Processors with Line-Wrap: Cascading, Self-Organized Criticality, Random Walks, Diffusion, Predictability", W. Bauer and S. Pratt, Phys. Rev. E**54**, R1009 (1996).

73. "Cross comparisons of nuclear temperatures determined from excited state populations and isotope yields", M.B. Tsang, F. Zhu, W.G. Lynch, A. Aranda, D.R. Bowman, R.T. de Souza, C.K. Gelbke, Y.D. Kim, L. Phair, S. Pratt, C. Williams, H.M. Xu and W.A. Friedman, Phys. Rev. C**53**, R1057 (1996).

74. "Delays Associated with Elementary Processes in Nuclear Reaction Simulations", P. Danielewicz and S. Pratt, Phys. Rev. C**53**, 249 (1996).

75. "Understanding Proton Emission in Central Heavy-Ion Collisions", D.O. Handzy, W. Bauer, F.C. Daffin, S.J. Gaff, C.K. Gelbke, T. Glasmacher, E. Gualtieri, S. Hannuschke, M.J. Huang, G.J. Kunde, R. Lacey, T. Li, M.A. Lisa, W.J. Llope, W.G. Lynch, L.Martin, C.P. Montoya, R. Pak, G.F. Peaslee, S. Pratt, C. Schwarz, N. Stone, M.B. Tsang, A.M. Vander Molen, G.D. Westfall, J.Yee, and S.J. Yennello, Phys. Rev. Lett. **75**, 2916 (1995).

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77. "Measurement of Compound-Nucleus Space-Time Extent with Two-Neutron Correlation Functions", N. Colonna, D.R. Bowman, L. Celano, G. D'Erasmo, E.M. Fiore, L. Fiore, V. Paticchio, A. Pantaleo, G. Tagliente and S. Pratt, Phys. Rev. Lett. **75**, 4190 (1995).

78. "Two-proton correlations for ^{16}O + ^{197}Au collisions at E/A=200 MeV", S.J. Gaff, W. Bauer, F.C. Daffin, C.K. Gelbke, T. Glasmacher, E. Gualtieri, K. Haglin, D.O. Handzy, S. Hannuschke, M.J. Huang, G.J. Kunde, R. Lacey, W.G. Lynch, L. Martin, C.P. Montoya, R. Pak, S. Pratt, N. Stone, M.B. Tsang, A.M. Vander Molen, G.D. Westfall, and J. Yee, Phys. Rev. C**52**,782 (1995).

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82. "Bose-Enhancement and Pauli-Blocking Effects in Transport Models", S. Pratt and W. Bauer, Phys. Lett. **B329**, 413 (1994).

83. "Deciphering the CENTAURO Puzzle", S. Pratt, Phys. Rev. C**50**, 469 (1994).

84. "On the mean free paths of pions and kaons in hot hadronic matter", K. Haglin and S. Pratt, Phys. Lett. **B328**, 255 (1994).

85. "Looking for Quark Droplets in Ultrarelativistic Collisions", S. Pratt, Phys. Rev. C**49**, 2722 (1994).

86. "Explaining CENTAURO events by Formation of Pions in the Isospin Singlet Channel", S. Pratt and V. Zelevinsky, Phys. Rev. Lett. **72**, 816 (1994).

87. "Observation of Lifetime Effects in Two-Proton Correlations for Well- Characterized Sources", M.A. Lisa, C.K. Gelbke, P. Decowski, W.G. Gong, E. Gualtieri, S. Hannuschke, R. Lacey, T. Li, W.G. Lynch, G.F. Peaslee, S. Pratt, T. Reposeur, A.M. Vandermolen, G.D. Westfall, J. Lee and S.J. Yennello, Phys. Rev. Lett. **71**, 2863 (1993).

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89. "Bose-Einstein Correlations of Pion Pairs and Kaon Pairs from Relativistic Quantum Molecular Dynamics", J.P. Sullivan, M. Berenguer, B.V. Jacak, M. Sarabura, J. Simon-Gillo, H. Sorge, H. Van Hecke and S. Pratt, Phys. Rev. Lett. **70**, 3000 (1993).

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91. "Two-Deuteron Correlation Functions for ^{14}N +^{27} Al Collisions at E/A = 75 MeV", W.G. Gong, P. Danielewicz, C.K. Gelbke, N. Carlin, R.T. de Souza, Y.D. Kim, W.G. Lynch, T. Murakami, G. Poggi, S. Pratt, D. Sanderson, M.B. Tsang, and H.M. Xu, Phys. Rev. C**47**, R429 (1993).

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93. "Kaon Pictures of QCD Plasma Droplets", S. Pratt, A. Vischer and P.J. Siemens, Phys. Rev. Lett. **68**, 1109 (1992).

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95. "How Decays and Final-State Interactions Affect Velocity Correlations in Heavy- Ion Collisions", K.L. Wieand, S. Pratt and A.B. Balantekin, Phys. Lett. **B274**, 7 (1991).

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99. "Space-time Evolution of Nuclear Reactions Probed by Two-Proton Intensity Interferometry", W.G. Gong, W. Bauer, C.K. Gelbke, and S. Pratt, Phys. Rev. C**43**, 781 (1991).

100. "Space-time Evolution of the Reactions $^{14}N + ^{27}Al$,^{197}Au at E/A = 75 MeV and $^{129}Xe + ^{27}Al$,^{122}Sn at E/A = 32 MeV", W.G. Gong, W. Bauer, C.K. Gelbke, N. Carlin, R.T. de Souza, Y.D. Kim, W.G. Lynch, T. Murakami, G. Poggi, D. Sanderson, M.B. Tsang, H.M. Xu, D.E. Fields, K. Kwiatkowski, R. Planeta, V.E. Viola, Jr., S.J. Yennello, and S. Pratt, Phys. Rev. C**43**, 1804 (1991).

101. "Intensity-Interferometric Test for Nuclear Collision Geometries Obtained from the Boltzmann-Uehling-Uhlenbeck Equation", W.G. Gong, W. Bauer, C.K. Gelbke, N. Carlin, R.T. de Souza, Y.D. Kim, W.G. Lynch, T. Murakami, G. Poggi, D. Sanderson, M.B. Tsang, H.M. Xu, D.E. Fields, K. Kwiatkowski, R. Planeta, V.E. Viola, Jr., S.J. Yennello, and S. Pratt, Phys. Rev. Lett **65**, 2114 (1990).

102. "Nucleation Theory for Matter Far from Equilibrium", S. Pratt, Phys. Rev. A**42**, 7447 (1990).

103. "Detailed Predictions for Two-Pion Corelations in Ultrarelativistic Heavy-Ion Collisions", S. Pratt, T. Csörgő and J. Zimányi, Phys. Rev. C**42**, 2646 (1990).

104. "Two-Proton Correlation Functions for Equilibrium and Non-Equilibrium Emission", W.G. Gong, C.K. Gelbke, N. Carlin, R.T. de Souza, Y.D. Kim, W.G. Lynch, T. Murakami, G. Poggi, D. Sanderson, M.B. Tsang, H.M. Xu, D.E. Fields K. Kwiatkowski, R. Planeta, V.E. Viola, Jr., S.J. Yennello, and S. Pratt, Phys. Lett. **B246**, 21 (1990).

105. "Two-Pion Correlations from SPACER", T. Csörgő, J. Zimányi, J. Bondorf, H. Heiselberg, and S. Pratt, Phys. Lett. **B241**, 301 (1990).

106. "Effect of Pion Dispersion Relation on Lepton-Pair Production in Nuclear Medium", C.L. Korpa and S. Pratt, Phys. Rev. Lett. **64**, 1502 (1990).

107. "Nuclear Thermometers for Heavy-Ion Collisions", S. Pratt, Phys. Rev. C**40**, 168 (1989).

108. "Extended Emission Sources Observed Via Two-Proton Correlations", T.C. Awes, R.L. Ferguson, F.E. Obenshain, F. Plasil, G.R. Young, Z. Chen, C.K. Gelbke, W.G. lynch, J. Pochodzalla, H.M. Xu and S. Pratt, Phys. Rev. Lett. **61**, 2665 (1988).

109. "Bubbles and Drops in Superheated and Supercooled Nuclear Matter", Bao-An Li, S. Pratt and P.J. Siemens, Phys. Rev. C**37**, 1473 (1988).

110. "Viewing the Liquid Gas Phase Transition by Measuring Proton Correlations", S. Pratt and M.B. Tsang, Phys. Rev. C**36**, 2390 (1988).

111. "Hot Nuclear Matter at Low Density", S. Pratt, P.J. Siemens and Q.N. Usmani, Phys. Lett. **B189**, 1 (1987).

112. "Pion Interferometry of the Quark-Gluon Plasma", S. Pratt, Phys. Rev. D**33**, 1314 (1986).

113. "Coherence and Coulomb Effects on Pion Inteferometry", S. Pratt, Phys. Rev. D**33**, 72 (1986).

114. "Correlation Between Transverse Momentum and Multiplicity for Spherically Exploding Quark-Gluon Plasmas", J. Kapusta, S. Pratt, L. McLerran, and H. Von Gersdorff, Phys. Lett. **B163**, 253 (1985).

115. "Pion Interferometry for Exploding Sources", S. Pratt, Phys. Rev. Lett. **53**, 1219 (1984).

116. "Finite Temperature and Supercharged Ideal Supersymmetric Matter", J. Kapusta, S. Pratt and V. Visjnic, Phys. Rev. D**28**, 3093 (1983).

1.5 Invited Talks at Conferences

1. "Viewing the Chemical Evolution of the QGP", International School of Nuclear Physics, Probing the Extremes of Matter with Heavy Ions, Erice, Sicily, Setember 2012.

2. "Comparing Lattice Results to Measurements from RHIC", Heating Nuclei, Boiling Black Holes and Burning Rubber, Montreal, June 2012.

3. "What it Means to See the QGP", Intersections of Nuclear and Particle Physics, Jacksonville, May 2012.

4. "Viewing the Chemical Evolution of the QGP", Nucleus-Nucleus, San Antonio, May 2012.

5. "Generalized Charge Balance Functions: Insight into the Chemistry of the QGP", Winter Workshop on Nuclear Dynamics, San Juan, Puerto Rico, April 2012.

6. "Balance Functions, Insight into the Chemical Equilibrium of the QGP", Workshop on Particle Correlations and Femtoscopy, Tokyo, November 2011.

7. "Charge Conservation Correlations vs. Parity Fluctuations", RHIC/AGS Users Meeting, June 2011.

8. "Correlations from Momentum and Charge Conservation", *From Strong Fields to Colorful Matter*, Celebration of Berndt Müller's 60$^{\text{th}}$ Birthday, Asheville, NC, November, 2010.

9. "Implications of Charge Conservation for Fluctuations of Parity-Odd Angular Correlations at RHIC", Institute for Nuclear Theory, Seattle WA, June, 2010.

10. "Alternative Explanations for STAR's Parity Signal", STAR Collaboration Meeting, Austin TX, January 2010.

11. "Comparing Data to Models", CATHIE/TECHQM meeting, Brookhaven Nat. Lab., December 2009.

12. "Solving the HBT Puzzle", Invited Talk, Division of Nucl. Physics, American Physical Society, Waikoloa, HI, October 2009.

13. "Manifestations of Viscosity and Early Flow", Flow and Dissipation in Heavy Ion Collisions Workshop, Trento, Italy, September 2009.

14. "Rigorous Comparisons of Theory to Experiment", Division of Particle Physics, American Phys. Soc. Meeting, Wayne State University, September, 2009.

15. "Extracting Bulk QGP Properties from Experiment", RHIC/AGS Users Meeting, Brookhaven Nat. Lab., June 2009.

16. "The Long Slow Death of the HBT Puzzle, Plenary Talk, Quark Matter 2009, Knoxville, TN, March 2009.

17. "The Viscosity of Strongly Interacting Fluids", Workshop on Thermal Quantum Field Theory and their Applications, Kyoto, Japan, March 2009.

18. "On the Origin of Quarks in Heavy Ion Collisions", Electromagnetic Probes Workshop, Nagoya, Japan, March, 2009.

19. "Universal Flow in the Early Stages at RHIC", 26th Winter Workshop on Nuclear Dynamics, Big Sky, Montana, February, 2009.

20. "Universal Flow in the Early Stages of RHIC", TECHQM Workshop, Berkeley, CA, December, 2008.

21. "The Long Slow Death of the HBT Puzzle, Relativistic Aspects of Nuclear Physics, Rio de Janeiro, November 2008.

22. "The Long Slow Death of the HBT Puzzle", Workshop on Particle Correlations and Femtoscopy, Krakow, Poland, September 2008.

23. "Femtoscopy through the Decades", Gordon Conference on Nuclear Chemistry, Colby Sawyer College, New Hampshire, June 2008.

24. "Viscosity: Theory and Practice", Workshop on Nuclear Dynamics, South Padre Island, Texas, April 2008.

25. "Viscosity at RHIC", American Chemical Society, Session on Nuclear Chemistry, New Orleans, LA, April 2008.

26. "Lectures on Correlations and Fluctuations", L'Ecole de Physique – QCD School, Les Houches France, March 2008.
27. "Femtoscopy Review", International Symposium on Multiparticle Dynamics, Berkeley, California, August 2007.
28. "A Scientific Method For RHIC", PHENIX Collaboration Meeting, Boulder, Colorado, 2007.
29. "Extending the Reach of Hydrodynamics", Zimányi 75 Memorial Workshop on Hadronic and Quark Matter, Budapest, Hungary, July, 2007.
30. "Tsunamis at RHIC", International Conference on Strangeness in Quark Matter, Levoca, Slovakia, June 2007.
31. "Mean Field Distortions of Interferometric Source Sizes", RHIC Phenomenology Workshop, Seattle, WA, October, 2006.
32. "Viscosity in Relativistic Heavy Ion Collisions: Sources and Manifestations", Gordon Research Conference on Nuclear Chemistry, New London, New Hampshire, June (2006).
33. "Shapes and Sizes from Non-Identical Correlations", Workshop on Particle Correlations and Femtoscopy, Sao Paulo, Sep. 2006, nucl-th/0612006.
34. "Viscosity at RHIC", 22nd Winter Workshop on Nuclear Dynamics, La Jolla, CA, March, 2006, nucl-th/0604007.
35. "Refractive Distortions of Two-Particle Correlations", First International Workshop of the Virtual Institute, Fluctuations and Correlations, October 2005.
36. "Is HBT really puzzling", Workshop on Particle Correlations and Femtoscopy, Kromeriz, Czech Republic, August 2005.
37. "Refractive Distortions of Two-Particle Correlations", International Symposium on Multi-Particle Dynamics, Kromeriz, Czech Republic, August 2005.
38. "Femtoscopy at RHIC", School of Collective Dynamics in Heavy Ion Collisions, Lawrence Berkeley Laboratory, May 2005.
39. "Correlation Functions: Getting into Shape", Workshop on Nuclear Dynamics, Breckenridge, Colorado, February 2005.
40. "Recursive Methods for Statistical Nuclear Physics", Retirement Symposium for Subal Das Gupta, McGill, Canada, December 2004.
41. "Quark Recombination and Coalescence", Phase Transitions in Nucleus-Nucleus Collisions, Prague, Czech Republic, September 2004.
42. "Solving the HBT Puzzle", Workshop on Deconfinement in Nucleus-Nucleus Collisions, European Center for Theoretical Physics, Trento, Italy, April 2004.
43. "Entropy and Phase Space Density at RHIC", 20th Workshop on Nuclear Dynamics, Jamaica, March 2004.
44. "The Final State at RHIC", Collective flow and QGP properties, Brookhaven Natl. Lab., November, 2003.

45. "Determining $R_{\rm out}, R_{\rm side}, R_{\rm long}$ with non-identical particle correlations, Second Warsaw Meeting on Particle Correlations and Resonances in Heavy Ion Collision, Warsaw, Poland, October, 2003.

46. "Have we seen the Quark Gluon Plasma at RHIC?", STAR Collaboration Meeting, East Lansing, MI, August, 2003.

47. "New Methods for Measuring Shapes and Lifetimes of Sources at RHIC", Transport Theories for Heavy Ion Reactions, Trento, Italy, May, 2003.

48. "Bringing the Balance Function into Focus", 19^{th} Winter Workshop on Nuclear Dynamics, Breckinridge, CO, January, 2003, Proceedings of the 19^{th} Winter Workshop on Nuclear Dynamics, ed. W. Bauer, R. Bellwied, J.W. Harris and G.D. Westfall, EP Systema, Hungary.

49. "Correlations and Fluctuations, Summary Talk", Quark Matter 2002, Nantes, France, July, 2002.

50. "Open Questions in Soft Physics at RHIC", Future Physics at RHIC, Bar Harbor, Maine, June, 2002.

51. "Correlations and Fluctuations Summary Talk", Workshop on Correlations and Flow at RHIC, Brookhaven Natl. Lab., June, 2002.

52. "Charge Creation in Baryon-Rich Environments", Workshop on Compressed Baryonic Matter, GSI, May, 2002.

53. "Potential CPU Needs for RHIC Modeling", Advanced Computing at RHIC Workshop, Brookhaven Natl. Lab., September, 2002.

54. "Hadronization at RHIC", 18th Winter Workshop on Nuclear Dynamics, Nassau, Bahamas, January, 2002, Proceedings of the 18^{th} Winter Workshop on Nuclear Dynamics, ed. R. Bellwied, J.W. Harris and W. Bauer, EP Systema, Hungary.

55. "Multiparticle observables at RHIC", International Conference on Physics of the Quark Gluon Plasma, Paris, September 2001, proceedings to be published.

56. "Balance Functions as a Signal of Late-Stage Hadronization"... Nuclear Chemistry Gordon Conf, Chicago, August 2001.

57. "Interpreting Data from the First Year at RHIC", BNL Users Meeting, Brookhaven Natl. Lab., August 2001.

58. "Balance Functions as a Signal of Late-Stage Hadronization", Thermalfest, Brookhaven National Laboratory, July 2001.

59. "Balance Functions as a Signal of Late-Stage Hadronization", Quark Matter 2001, Stony Brook, New York, to appear in Nucl. Phys., (2002).

60. "Most Important Measurements for RHIC During the Next Five Years", RHIC Town Meeting Work Shop, Brookhaven National Laboratory, December 2000.

61. "Balance functions as a signal of late-stage hadronization", STAR Collaboration theory symposium, Berkeley, December 2000.

62. "Generating Scientific Conculusions from Heavy-Ion Collisions at RHIC", RHIC Users Meeting & Mini Town Meeting, August 2000.

63. "Reactions Opportunities with Radioactive Beams", Panel Discussion, Nuclear Chemistry Gordon Conference, New Hampshire, June 2000.

64. "Balance Functions, a Signal of Late-Stage Hadronization", OSCAR Workshop, Nantes, France, June 2000.

65. "Generating Physics Conclusions from RHIC", Nuclear Dynamics Workshop, Park City, Utah, March 2000.

66. "Generating Physics Conclusions from RHIC", OSCAR '99 workshop, Brookhaven, National Laboratory, July 1999.

67. "Timing the RHIC Fireball with HBT", Quark Matter '99, Torino, Italy, panel presentation, June 1999.

68. "Phenomenology of Relativistic Heavy Ion Collisions", National Nuclear Physics Summer School, four lectures, August, 1998.

69. "Fifty ways to measure source size", HBT Symposium, Catania, Italy, June, 1998.

70. "Penetrating the breakup stage of relativistic heavy ion collisions", APS Spring meeting, Systematics of Heavy Ion Collisions Workshop, Columbus Ohio, April 1998.

71. "Equilibrium Strikes Out", Winter Dynamics Workshop, Snowbird, Utah, February, 1998. Proceedings to be published by Plenum.

72. "What we are learning from two-particle correlations", plenary talk, Quark Matter 97, Tsukuba, Japan, December 1997. Nucl. Phys. A**638**, 125 (1998).

73. "Understanding Relativistic Heavy Ion Collisions by Working Backwards", American Chemical Society Symposium, Las Vegas, September (1997).

74. "Reconstructing the Final State of Heavy Ion Collisions", Winter workshop on hadronic signals for RHIC, Berkeley, CA, February (1997).

75. "Reconstructing the Final State of Heavy Ion Collisions", Hadronic Phase Transitions Workshop, Copenhagen, Denmark, November, 1996.

76. "The Systematic Error in HBT Formulas", HBT workshop, Trento, Italy, September, 1996.

77. "Reconstructing the Final State of Heavy Ion Collisions at CERN", APS Spring Meeting, Indianapolis, May, 1996.

78. "Coherent Pions at 10^{13} Kelvin", Relativistic Aspects of Nuclear Physics, Rio de Janeiro, August, 1995.

79. "Coherent Pions in High Energy Collisions", Nuclear Physics Gordon Conference, Tilton, New Hampshire, July, 1995.

80. "Other Correlation Measurements for RHIC", Star Theory Workshop, Monterey, California, January, 1995.

81. "Bose Effects in High-Energy Collisions", International Workshop on Particle Correlations and Interferometry in Nuclear Collisions, CORINNE (94), September, 1994.

82. "Fifty Ways to Measure Source Size", Nuclear Chemistry Gordon Conference, Colby-Sawyer College, New Hampshire, June, 1994.

83. "Viewing Heavy Ion Collisions with Correlation Measurements", Invited talk, APS Division of Nuclear Physics - Fall Meeting, Asilomar, California, October, 1993.

84. "Looking for Quark Droplets in Heavy Ion Collisions", American Chemical Society, Nuclear Chemistry Division, Chicago, August, 1993.

85. "Testing Transport Theories with Correlation Measurements", Quark Matter 93, Plenary Talk, Sweden, June, 1993, Nucl. Phys. **A566**, 103c (1994).

86. "Pion Lasers for Nuclear Collisions", Theory of Relativistic Heavy Ion Collisions Workshop, Bergen, Norway, June, 1993.

87. "Pion Lasers for Nuclear Collisions", HIPAGS conference, MIT, January, 1993, MITLNS-2158, ed. G.S.F. Stephans.

88. "Hadronic Microscopes of Nuclear Collisions", Very High Energy Cosmic-Ray Interactions, VII^t International Symposium, AIP Conference Proc. 276, ed. L. Jones, 374 (1992).

89. "Pion Lasers for Nuclear Collisions", HBT Micro-Symposium, Columbia University, October, 1992.

90. "The Progress and Promise of Two-Particle Correlations", Correlations Workshop, APS Nuclear Physics - Fall Meeting, East Lansing, Michigan, Ocotober, 1991.

91. "Current Status of Pion Correlations - Theory", Intersections of Particles and Nuclear Physics, Tucson, Arizona, May, 1991, Nucl. Phys. **A527**, 621c (1991).

92. "Viewing the Pion Dispersion Relation in Relativistic Heavy-Ion Collisions", Pittsburgh Dilepton and Soft Photon Workshop, University of Pittsburgh, published in *Soft Lepton Pair and Photon Production*, ed. J.A. Thompson, Nova, p. 237 (1992).

93. "Two-Pion Correlations for Ultrarelativistic Heavy-Ion Collisions", Particles and Nuclear Intersections Conference, MIT, June, 1990, published in Nucl. Phys. **A527**, 621 (1991).

94. "Proton Correlations from Evaporating and Exploding Sources", International Workshop on Particle Correlations and Interferometry in Nuclear Collisions, June, 1990, published in *CORRINE 90*, ed. D. Ardouin, World Scientific p. 183 (1991).

95. "Two-Pion Interferometry as a Signal for the Quark-Gluon Plasma", Intersections of Particle and Nuclear Physics, May, 1988, published in American Institute of of Physics Conference Proceedings **176**,ed. G.M. Bunce, p. 1003 (1989).

96. "Proton Correlations in Heavy-Ion Reactions", American Chemical Society, Denver, April, (1987).

97. "Pion Interferometry of the Quark-Gluon Plasma", Quark Matter '84, Helsinki, Finland, June (1984).

1.6 Student Guidance

1.6.1 Undergraduate Summer Research Projects

Kelly Wieand, University of Wisconsin, 1990
Yvonne Pirwitz, "Investigating Unstable Matter with Molecular Dynamics", MSU REU program, 1993.
Filip Ronning, "Fragment-Formation in Atomic Collisions", MSU REU program, 1994.
Eric Eslinger, "Reversibility of Cascading Systems", MSU REU program 1997.
Patrick Underhill, "Nuclear Fragmentation", MSU REU program 1999.
Theresa Conway, "High-Energy Thermometers", MSU REU program 2000.
Michael Skoby, "Balance Functions for RHIC", MSU REU program 2002.
Kevin Knoll, "Correlations and Charge Balance", MSU REU program 2004.
Brandon Alleman, "Fragmentation Sequencing", MSU REU program 2005.
Fiona Ding, "Fragmentation Mechanisms", MSU REU program 2008.

1.6.2 Graduate Students

Alexander Volya, Ph.D., graduated July 2000
Sen Cheng, Ph.D., graduated September 2002
Silvio Petriconi, M.S., graduated August 2003
Li Yang, M.S., graduated August 2007
Joshua Vredevoogd, Ph.D. expected 2012
Kevin Novak, M.S., 2011
John Novak, 2011-
Jeffrey Wyka, 2012-

1.7 Seminars and Colloquia

2012 Yale, Brookhaven, Ohio State, Wayne State, MSU

2011 University of Texas El Paso, New Mexico State University, UCLA, NIKHEF (Amsterdam)

2010 Purdue University, Brookhaven National Lab.

2009 Livermore, Ohio State, Nagoya, Hiroshima, McGill

2008 Ball State, Michigan State

2007 Livermore, Los Alamos, Texas A&M, Duke

2006 Ohio State, Duke

2005 Livermore, Los Alamos

2004 Iowa State, Stony Brook, Univ. of Illinois Chicago

2003 Yale, Kansas, Kansas State, Wayne State, Brookhaven, Duke

2002 Argonne Natl. Lab, Stony Brook, Brookhaven, Creighton

2001 Iowa State, Creighton, Lawrence Berkeley Natl. Lab., Yale, Lawrence Livermore National Laboratory(2), Oak Ridge Natl. Lab., Columbia, Stony Brook, Brookhaven Natl. Lab., McGill, Ohio State

2000 Maryland, Minnesota, Brookhaven Natl. Lab., Wayne State

1999 Univ. Toledo, Argonne Natl. Lab.

1998 Stony Brook, Lawrence Berkeley Lab., Vanderbilt

1997 Brookhaven Natl. Lab., Los Alamos Natl. Lab., Ohio State

1996 Duke, Kent State, Wayne State

1995 CERN (Switzerland), GANIL (France), Catania (Italy), Bari (Italy), Indiana

1994 Columbia, McGill, Yale, Purdue(2)

1993 Texas A. & M., Stonybrook, Brookhaven, Wayne State, Washington Univ. at St. Louis., Maryland

1992 Washington, Lawrence Livermore Laboratory, Lawrence Berkeley Laboratory, Wayne State, Purdue, Columbia, Brookhaven, Los Alamos, Kent State, Ohio State

2 Teaching

Summer 1990	Univ. of Wisc.	Introductory Calculus-Based Physics
Fall 1990	Univ. of Wisc.	Intermediate Level Mechanics
Spring 1993	M.S.U.	Introductory Calculus Based Physics Recitation
Spring 1994	M.S.U.	Optics
Fall 1994	Wayne State	Atoms, Solids and Molecules
Spring 1995	M.S.U.	Intro. Physics Laboratory
Fall 1995	.	Phyics 232 Recitation
Spring 1996	.	Physics 232 Lecture (Introductory Physics II)
Fall 1996	.	Physics 232 Recitation
Spring 1997	.	Physics 232 Lecture
Spring 1998	.	Physics 232 Lecture (2 sections)
Fall 1998	.	Physics 851, (Quantum Mechanics)
Spring 1999	.	Physics 852
Fall 1999	.	Physics 851
Spring 2000	.	Physics 852
Fall 2000	.	Physics 851
Spring 2001	.	Physics 852
Fall 2001	.	Physics 881, (Subatomic Physics)
Fall 2002	.	Physics 231 Lecture (Introductory Physics I)
Fall 2003	.	Physics 231c/232c (On-Line Introductory Physics)
Spring 2004	.	Physics 231 Lecture (Introductory Physics I)
Fall 2004	.	Physics 231/231C (On-Line Introductory Physics)
Spring 2005	.	Physics 231/231C Lecture (Introductory Physics I)
Fall 2005	.	Physics 231/231C (On-Line Introductory Physics)
Spring 2006	.	Physics 231/231C Lecture (Introductory Physics I)
Fall 2006	.	Physics 831 (Equilibrium Statistical Mechanics)
Spring 2007	.	Physics 231/231C Lecture (Introductory Physics I)
Fall 2007	.	Physics 831 (Equilibrium Statistical Mechanics)
Spring 2008	.	Physics 231 Lecture (Introductory Physics I)
Fall 2008	.	Physics 831 (Equilibrium Statistical Mechanics)
Spring 2009	.	Physics 183 Lecture (Physics for Scientists and Engineers I)
Fall 2009	.	Physics 831 (Equilibrium Statistical Mechanics)
Spring 2010	.	Physics 183 Lecture (Physics for Scientists and Engineers I)

Awards:

1998: Received Osgood Teaching Award for Undergraduate Instruction
2009: PA Department Tenured Faculty Teaching Award

3 Service

3.1 MSU Service

Spring 1995	Written Exam
1995-96	Written Exam
1996-97	Written Exam, Cyclotron Lab. Seminar, NSCL Web
1997-98	Colloquium Chair, Written Exam, NSCL Web, ADCOM, REU program
1998-99	ADCOM secretary, REU program, NSCL Web, ADCOM secretary, REU program, NSCL computer committee,
1999-2000	Quantum Mechanics Subject Exam, Nuclear Search Committee, NSCL computer committee
2000-01	Quantum Mechanics Subject Exam, Quantum Mechanics Subject Exam, Distinguished Lecture Committee
2001-02	Statistical Mechanics Subject Exam
2002-03	Statistical Mechanics Subject Exam, Undergraduate Program Committee
2003-04	Colloquium Chair, Computer Operations
2004-05	Computer Operations, PA Newsletter
2005-06	Computer Operations, PA Newsletter, Stat. Mech. Subj. Exam
2006-07	Computer Operations, PA Newsletter, Stat. Mech. Subj. Exam
2007-08	Computer Operations, PA Newsletter, Stat. Mech. Subj. Exam
2008-09	Computer Operations, PA Newsletter, Stat. Mech. Subj. Exam
2009-10	Computer Operations, Stat. Mech. Subj. Exam
2010-	CNS representative to Univ. Academic Council

3.2 Outreach

Summer 1993	M.S.T. at M.S.U., enrichment program for middle-school children to science
1994-2006, 2010	Judge at Science Olympiad
Summer 1995	Dimensions at M.S.U., science enrichment program for middle-school children
Summer 1997,99	Participated in the PAN program
1998,99	Administrated REU Program (Research Experience for Undergraduates)
1996-2009	REU Program, directed research for 10 undergraduate students

3.3 National Service

1985 -	Referee, Physical Review C, Physical Review Letters, Physics Letters B Nuclear Physics B, Physics Reports
1985 -	Member, American Physical Society, Division of Nuclear Physics
2001 - 2003	Divisional Associate Editor, Physical Review Letters
2004 - 2006	Divisional Associate Editor, Physical Review Letters
2005	Civilian Defense Research Foundation, Review Panelist
2010	NSF Theory Panel

3.4 Conferences and Workshops Organized

Space-Time '97, East Lansing, MI, September 1997
Future of RHIC Transport, Brookhaven Natl. Lab., June 2001
INT Winter Workshop on Correlations and Fluctuations, Seattle, January 2002
Femtoscopy workshop, Brookhaven User's Meeting, June 2005
Workshop on Particle Correlations and Femtoscopy, Santa Rosa, California, August 2007
Winter Workshop on Nuclear Dynamics, Ocho Rios, Jamaica, January 2010
Parity Phenomena in Relativistic Heavy Ion Collisions, Brookhaven Natl. Lab., June, 2010.