Curriculum Vitae - Theodore W. Burkhardt   March 21, 2023

Education:
Vanderbilt University, Nashville, TN, Physics, 9/58-6/62, B.A.
Stanford University, Stanford, CA, Physics, 9/62-9/67, M.A., Ph.D.

Doctoral dissertation:
"Ground-State and Low-Excited Properties of Liquid He3 Calculated with a Two-Body Potential,"
supervised by Professor J.D. Walecka.

Positions held:
Max-Planck-Institut, Munich, Germany, NATO/NSF Postdoctoral Fellow, 10/67-6/69
Lincoln University, PA, Assistant Prof., 9/69-6/73.
Kernforschungsanlage, Jülich, Germany, Research Scientist 9/73-9/76, 10/78-9/80 (tenured position).
Institut Laue-Langevin, Grenoble, France, Research Scientist, 10/76-9/78, 10/80-7/81, 6/84-8/85.
University of Essen, Germany, Lecturer, Winter Semester 1979.
Curtis Institute of Music, Philadelphia, Lecturer, Spring Semester 1988.
University of Washington, Seattle, Visiting Professor, 9/88 - 8/89.
University of Munich, Germany, Visiting Professor, 3/93-8/93.
University of Essen, Germany, Visiting Professor, 2/95-8/95.
Forschungszentrum Jülich, Germany, Visiting Professor, 9/99-1/00
Institut Laue-Langevin, Grenoble France, Visiting Scientist, 3/00-7/00
Forschungszentrum Jülich, Germany, Visiting Professor, 9/06-3/07

Appointments at Temple University:
Associate Professor (1981), Professor (1987), Emeritus Professor (2016)

Honors:
National Science Foundation Graduate Fellowship, NATO/NSF Postdoctoral Fellowship, Lindback
Award for Distinguished Teaching (Lincoln University), Alexander von Humboldt Fellowship, W-E
Heraeus Fellowship, Alexander von Humboldt Research Award for U.S. Senior Scientist, Fellow of the
American Physical Society ("for contributions to the theory of phase transitions at surfaces and interfaces
and to the statistical mechanics of polymers"), Italia-Eire Foundation Distinguished Teacher of the Year
(Temple University).

Research Interests:
Theoretical statistical mechanics. Phase transitions and critical phenomena, especially surface and
interfacial behavior. Renormalization-group and conformal-invariance methods. Conformational
statistics of long, fluctuating polymer chains, especially in confined geometries. Statistics of random
acceleration.

Publications:

Books:
Real-Space Renormalization, edited by T.W. Burkhardt and J.M.J. van Leeuwen (Springer, 1982).
Supplied about 25 problems in 5th edition of Classical Dynamics by Marion and Thornton.

Research articles:

1. T. W. Burkhardt, Ground-State and Low-Excited Properties of Liquid He3 Calculated with a Two-Body Potential, Ann. Phys. 47, 516 (1968).
2. T. W. Burkhardt, The Binding Energy of a Lambda Particle in Nuclear Matter: a Green Function Formulation, Nuc. Phys. A 120, 434 (1968).
3. T. W. Burkhardt and J.D. Gunton, Critical Behavior of an Ising Model of Classical Spins in a Transverse Field, Phys. Rev. A 9, 2802 (1974).
4. T. W.Burkhardt, Internal Stresses in the Phase Transition of Coherent Metal-Hydrogen Systems, Z. Physik 269, 237 (1974).
5. T. W. Burkhardt and W. Wöger, X-Ray Scattering and the α-α' Phase Transition in Coherent Metal-Hydrogen Systems, Z. Physik B 21, 89 (1975).
6. T. W. Burkhardt, Kadanoff's Lower-Bound Renormalization Transformation, Phys. Rev. B 13, 3187 (1976).
7. T. W. Burkhardt and R. H. Swendsen, Critical Temperatures of the Spin-s Ising Model, Phys. Rev. B 13, 3071 (1976).

8. T. W. Burkhardt, Application of Kandanoff's Lower-Bound Renormalization Transformation to the Blume-Capel Model, Phys. Rev. B 14, 1196 (1976).

9. T. W. Burkhardt, H.J.F. Knops, and M. den Nijs, Renormalization-Group Results for the 3-State Potts Model, J. Physics A 9, L 179 (1976).

10. T. W. Burkhardt and H.J.F. Knops, Renormalization-Group Results for the Blume-Capel Model in Two and Three Dimensions, Phys. Rev. B 15, 1602 (1977).

11. H. Müller-Krumbhaar, T. W. Burkhardt, and D. M. Kroll, A Generalized Kinetic Equation for Crystal Growth, J. Crystal Growth 38, 13 (1977).

12. T. W. Burkhardt and E. Eisenriegler, Renormalization-Group Approach to the Ising Model with a Free Surface, Phys. Rev. B 17, 3213 (1977).

13. T. W. Burkhardt and E. Eisenriegler, Renormalization-Group Approach to Surface Critical Behavior in the Ising Model, Phys. Rev. B 17, 318 (1978).

14. T. W. Burkhardt, Interface Free Energy and Critical Line for the Ising Model with Nearest and Next Nearest-Neighbor Interactions, Z. Physik B 29, 129 (1978).

15. T. W. Burkhardt, Critical Surface of the Ising Model with First-Neighbor, Second- Neighbor, and Four-Spin Interactions, Z. Physik B 31, 183 (1978).

16. T. W. Burkhardt and B. W. Southern, Exact Critical Surface of the s-State Potts Model with Anisotropic Interactions on the Triangular and Honeycomb Lattices, J. Physics A 11, L247 (1978).

17. T. W. Burkhardt and B. W. Southern, Renormalization-Group Results for Bond and Site Percolation in Two and Three Dimensions, J. Physics A 11, L253 (1978).

18. T. W. Burkhardt and B. W. Southern, Optimal Truncation Procedures in Renormalization-Group Calculations, J. Stat. Phys. 20, 247 (1979).

19. T. W. Burkhardt, Applications of an Exact Duality-Decimation Transformation for Two-Dimensiona Spin Systems on a Square Lattice, Phys. Rev. B 20, 2905 (1979).

20. T. W. Burkhardt and W. Kinzel, Real-Space Renormalization for Structural Phase Transitions in the Ising Universality Class, Phys. Rev. B 20, 4730 (1979).

21. T. W. Burkhardt, Random-Field Singularities in Position-Space Renormalization-Group Transformations, Phys. Rev. Lett. 43, 1629 (1979).

22. T. W. Burkhardt, Critical and Tricritical Exponents of the Potts Lattice Gas, Z. Physik B 39, 159 (1980).

23. T. W. Burkhardt, Localisation-Delocalisation Transition in a Solid-on-Solid Model with a Pinning Potential, J. Phys. A 14, L63 (1981).

24. T. W. Burkhardt and V. R. Vieira, Molecular-Field Theory of Interface Pinning in an External Potential, J. Phys. A 14, L223 (1981).

25. T. W. Burkhardt and E. Eisenriegler, Critical Phenomena near Free Surfaces and Defect Planes, Phys. Rev. B 24, 1236 (1981).

26. T. W. Burkhardt, Scaling Theory of Boundary Spin Correlations in Inhomogeneous Critical Systems, Phys. Rev. Lett. 48, 216 (1982)

27. E. Eisenriegler and T. W. Burkhardt, Universal and Nonuniversal Critical Behavior of the n-Vector Model with a Defect Plane in the Limit n→∞, Phys. Rev. B 25, 3283 (1982).

28. T. W. Burkhardt, Crossover in the Critical Behavior of Inhomogeneous Semi-Infinite Systems, Phys. Rev. B 25, 7048 (1982).

29. T. W. Burkhardt and J. M. J. van Leeuwen, Progress and Problems in Real-Space Renormalization, Chapter 1 in Real-Space Renormalization, edited by T.W. Burkhardt and J.M.J. van Leeuwen (Springer, 1982).

30. T. W. Burkhardt, Bond-Moving and Variational Methods, Chapter 2 in Real-Space Renormalization, edited by T.W. Burkhardt and J.M.J. van Leeuwen (Springer, 1982).

31. T. W. Burkhardt and I. Guim, Nonuniversal and Anomalous Surface Critical Behavior in an Inhomogeneous Semi-Infinite Gaussian Model, J. Phys. A 15, L305 (1982).

32. T. W. Burkhardt and I. Guim, Real-Space Renormalization of the Smoothly Inhomogeneous Ising Model, J. Phys. A 16, L721 (1983).

33. T. W. Burkhardt and I. Guim, Surface Critical Behavior of the Smoothly Inhomogeneous Ising Model, Phys. Rev. B 29, 508 (1984).

34. T. W. Burkhardt and P. Schlottmann, Edge Pinning and Internal Phase Transitions in a System of Domain Walls, Z. Physik B 54, 151 (1984).

35. T. W. Burkhardt, I. Guim, H. J. Hilhorst, and J. M. J. van Leeuwen, Boundary Magnetization and Spinorrelations in Inhomogeneous Two-Dimensional Ising Systems, Phys. Rev. B 30, 1486 (1984).

36. T. W. Burkhardt, Surface Critical Phenomena in Systems with a Bulk Phase Transition, in Static Critical Phenomena in Inhomogeneous Systems, edited by A. Pekalski and J. Snajd (Springer, 1984).

37. T. W. Burkhardt and I. Guim, Correlation Length in Ising Strips with Free and Fixed Boundary Conditions, J. Phys. A 18, L25 (1985).

38. T. W. Burkhardt and I. Guim, Finite-Size Scaling of the Quantum Ising Chain with Periodic, Free, and Antiperiodic Boundary Conditions, J. Phys. A 18, L33 (1985).

39. T. W. Burkhardt and E. Eisenriegler, Universal Order-Parameter Profiles in Confined Critical Systems with Boundary Fields, J. Phys. A 18, L83 (1985).

40. T. W. Burkhardt, Duality of Ordinary and Extraordinary Surface Critical Behavior in the Two-Dimensional Potts Model, J. Phys. A 18, L307 (1985).

41. T. W. Burkhardt and B. Derrida, Moments of the Total Magnetization and Conformal Invariance in the Finite Two-Dimensional Ising Model, Phys. Rev. B 32, 7273 (1985).

42. T. W. Burkhardt and E. Eisenriegler, Pair correlations in the Antiperiodic Ising Strip and Conformal Invariance, J. Phys. A 19, L663 (1986).

43. T. W. Burkhardt and I. Guim, Universal Scaling Form of the Correlation Length in Ising Strips with Periodic, Free, Fixed, and Mixed Boundary Conditions, Phys. Rev. B 35, 1799 (1987).

44. T. W. Burkhardt and J.L. Cardy, Surface Critical Behaviour and Local Operators with Boundary-Induced Critical Profiles, J. Phys. A 20, L233 (1987).

45. T. W. Burkhardt and I. Guim, Bulk, Surface, and Interface Properties of the Ising Model and Conformal Invariance, Phys. Rev. B 36, 2080 (1987).

46. T. W. Burkhardt, Scaling of the Excess Area of Interfaces, Phys. Rev. Lett. 59, 1058 (1987).

47. T. W. Burkhardt, Order-Parameter Profiles in Confined Critical Systems and Conformal Invariance, Nucl. Phys. B (Proc. Suppl.) 5A, 27 (1988).

48. I. Guim and T. W. Burkhardt, Transfer-Matrix Study of the Adsorption of a Flexible Self-Avoiding Polymer Chain in Two Dimensions, J. Phys. A 22,1131 (1989).

49. T. W. Burkhardt, E. Eisenriegler, and I. Guim, Conformal Theory of Energy Correlations in the Semi-Infinite Two-Dimensional O(N) Model,Nucl. Phys. B 316, 559 (1989).

50. T. W. Burkhardt, Propagator for the Wetting Transition in 1+1 Dimensions, Phys. Rev. B 40, 6987 (1989).

51. G. Gompper and T. W. Burkhardt, Unbinding Transition of Semiflexible Membranes in (1+1) Dimensions, Phys. Rev. A 40, 6124 (1989).

52. T. W. Burkhardt, W. Selke, and T. Xue, Droplets in the Two-Dimensional Critical Ising Model and Conformal Invariance, J. Phys. A 22, L1129 (1989).

53. T. W. Burkhardt and F. Igloi, Semi-Infinite Two-Dimensional Ising Model with Marginally Inhomogeneous Couplings and Conformal Invariance, J. Phys. A 23, L633 (1990).

54. I. Guim, T. W. Burkhardt, and T. Xue, Surface Behaviour of the Fully Frustrated Two-Dimensional Ising Model, Phys. Rev. B 42, 10298 (1990).

55. T. W.Burkhardt and T. Xue, Density Profiles in Confined Critical Systems and Conformal Invariance, Phys. Rev. Lett. 66, 895 (1991).

56. T. W. Burkhardt and T. Xue, Conformal Invariance and Systems with Mixed Boundary Conditions, Nucl. Phys. B 354, 653 (1991).

57. T. W. Burkhardt and I. Guim, Conformal Theory of Spin Correlations in the Semi-Infinite 3-State Potts and Self-Dual Z_N Models, J. Phys. A 24, 1557 (1991).

58. T. W. Burkhardt and I. Guim, Self-Avoiding Walks that Cross a Square, J. Phys. A 24, L1221 (1991).

59. T. W. Burkhardt and J.-Y. Choi, Correlations of the Energy Density and Conformal Invariance in the Two-Dimensional Ising Model with a Defect Line, Nucl. Phys. B 376, 447 (1992).

60. T. W. Burkhardt, Conformal Invariance and Critical Phenomena in Confined Geometries, in Dirkfest '92, edited by W. W. Buck, K. M. Maung, and B. D. Serot (World Scientific, 1992).

61. T. W. Burkhardt and I. Guim, Conformal Theory of the Two-Dimensional Ising Model with Homogeneous Boundary Conditions and with Disordered Boundary Fields, Phys. Rev. B 47, 14306 (1993).

62. T. W. Burkhardt and P. Schlottmann, Unbinding Transition in a Many-String System, J. Phys. A 26,L501 (1993).

63. T. W. Burkhardt, Semiflexible Polymer in the Half Plane and Statistics of the Integral of a Brownian Curve, J. Phys. A 26, L115 (1993).

64. I. Guim and T. W. Burkhardt, Crossover Exponent for Polymer Adsorption in Two Dimensions, Phys. Rev. E 49, 1495 (1994).

65. T. W. Burkhardt and E. Eisenriegler, Conformal Theory of the Two-Dimensional O(N) Model with Ordinary, Extraordinary, and Special Boundary Conditions, Nucl. Phys. B 424, 487 (1994).

66. T. W. Burkhardt and H. W. Diehl, Ordinary, Extraordinary, and Normal Surface Transitions: Extraordinary-Normal Equivalence and Simple Explanation of $|T-Tc|^{2-\alpha}$ Singularities, Phys. Rev. B 50, 3894 (1994).

67. T. W. Burkhardt, Unbinding of Three Strings in the Born-Oppenheimer Approximation, Z. Physik B 97, 247 (1995).

68. T. W. Burkhardt and E. Eisenriegler, Casimir Interaction of Spheres in a Fluid at the Critical Point, Phys. Rev. Lett. 74, 3189 (1995).

69. T. W. Burkhardt, Free Energy of a Semiflexible Polymer Confined Along an Axis, J. Phys. A 28, L629 (1995).

70. I. Guim, H. W. J. Blöte, and T. W. Burkhardt, Universality Class of Trails in Two Dimensions, J. Phys. A 30, 413 (1997).

71. A. Drewitz, R. Leidl, T. W. Burkhardt, and H. W. Diehl, Surface Critical Behavior of Binary Alloys and Antiferromagnets: Dependence of the Universality Class on Surface Orientation, Phys. Rev. Lett. 78, 1090 (1997).

72. T. W. Burkhardt, Free Energy of a Semiflexible Polymer in a Tube and Statistics of a Randomly Accelerated Particle, J. Phys. A 30, L167 (1997).

73. T. W. Burkhardt and I. Guim, Star-Triangle Approach to Boundary Behavior in the Two-Dimensional Ising Model, Physica A 251, 12 (1998).

74. T. W. Burkhardt, Two-Dimensional Wetting Transition in a Corrugated Potential, J. Phys. A 31, L549 (1998).

75. T. W. Burkhardt and I. Guim, Free Energy of a Long, Flexible, Self-Avoiding Polymer Chain in a Tube, Phys. Rev. E 59, 5833 (1999).

76. T. W. Burkhardt, Equivalence of the p-Degenerate and Ordinary Blume-Emery-Griffiths Models, Phys. Rev. B. 60, 12 502 (1999).

77. T. W. Burkhardt, J. Franklin, and R. R. Gawronski, Statistics of a Confined, Randomly Accelerated Particle with Inelastic Boundary Conditions, Phys. Rev. E 61, 2376 (2000).

78. D. J. Bicout and T. W. Burkhardt, Absorption of a Randomly Accelerated Particle: Gambler's Ruin in a Different Game, J. Phys. A 33, 6835 (2000).

79. T. W. Burkhardt, Dynamics of Absorption of a Randomly Accelerated Particle, J. Physics A 33 L429 (2000).

80. T. W. Burkhardt, Dynamics of Inelastic Collapse, Phys. Rev. E 63, 011111 (2001).

81. D. J. Bicout and T. W. Burkhardt, Simulation of a Semiflexible Polymer in a Narrow Cylindrical Pore, J. Phys. A 34, 5745 (2001).

82. A. Lamura, T. W. Burkhardt, and G. Gompper, Semi-Flexible Polymer in a Uniform Force Field in Two Dimensions, Phys. Rev. E 64, 061801 (2001).

83. T. W. Burkhardt, Absorption of a Randomly Accelerated Particle: Recent Results for Partially-Absorbing and Inelastic Boundaries, Physica A 306, 107 (2002).

84. T. W. Burkhardt and S. N. Kotsev, Equilibrium of a Confined, Randomly Accelerated, Inelastic Particle: Is There Inelastic Collapse?, Phys. Rev. E 70, 026105 (2004).

85. A. Lamura, T. W. Burkhardt, and G. Gompper, Helical Polymer in Cylindrical Confining Geometries, Phys. Rev. E 70, 051804 (2004).

86. S. N. Kotsev and T. W. Burkhardt, Randomly Accelerated Particle in a Box: Mean Absorption Time for Partially Absorbing and Inelastic Boundaries, Phys. Rev. E 71, 046115 (2005).

87. T. W. Burkhardt and S. N. Kotsev, Equilibrium Statistics of an Inelastically Bouncing Ball, Subject to Gravity and a Random Force, Phys. Rev. E 73, 046121 (2006).

88. T. W. Burkhardt, The Random Acceleration Process in Bounded Geometries, J. Stat. Mech. P07004 (2007).

89. Y. Yang, T. W. Burkhardt, and G. Gompper, Free Energy and Extension of a Semiflexible Polymer in Cylindrical Confining Geometries, Phys. Rev. E 76, 011804 (2007).

90. T. W. Burkhardt, G. Györgyi, N. R. Moloney, and Z. Rácz, Extreme Statistics of Time Series: Distribution of the Maximum Relative to the Initial Value, Phys. Rev. E 76, 041119 (2007).

91. T. W. Burkhardt, First-Passage and Extreme-Value Statistics of a Particle Subject to a Constant Force Plus a Random Force, J. Stat. Phys. 133, 217 (2008).

92. T. W. Burkhardt, Y. Yang, and G. Gompper, Fluctuations of a Long, Semiflexible Polymer in a Narrow Channel, Phys. Rev. E 82, 041801 (2010).

93. T. W. Burkhardt, Harmonically confined, semiflexible polymer in a channel: response to a stretching force and spatial distribution of the endpoints, J. Stat. Phys.145, 1472 (2011).

94. T. W. Burkhardt, First Passage of a Randomly Accelerated Particle, Chapter 2 in First-Passage Phenomena and Their Applications, edited by R. Metzler, G. Oshanin, and S. Redner (World Scientific, 2014).

95. J. P. McCreary Jr., R. Furue, F. Schloesser, T. W. Burkhardt, and M. Nonaka, Dynamics of the Atlantic meridional overturning circulation and Southern Ocean in an ocean model of intermediate complexity, Progress in Oceanography 143, 46 (2016).

96. H. J. Ouandji Boutcheng, T. Bouetou Bouetou, T.W. Burkhardt, A. Rosso, A. Zoia, and K. Timoleon Crepin, Occupation time statistics of the random acceleration model, J. Stat. Mech. 053213 (2016).

97. E. Eisenriegler and T. W. Burkhardt, Casimir interaction of rodlike particles in a two-dimensional critical system, Phys. Rev. E 94, 032130 (2016).

98. T. W. Burkhardt, Occupation time of a randomly accelerated particle on the positive half axis: Results for the first five moments, J. Stat. Phys. 169, 730 (2017).

99. T. W. Burkhardt, Tagged-Particle Statistics in Single-File Motion with Random-Acceleration and Langevin Dynamics, J. Stat. Phys. 177, 806 (2019).

100. T. W. Burkhardt and E. Eisenriegler, Two-dimensional critical systems with mixed boundary conditions: Exact Ising results from conformal invariance and boundary-operator expansions, Phys. Rev. E 103, 012120 (2021).

Papers presented at conferences:

1. T. W. Burkhardt, "Ground-State and Low-Excited Properties of Liquid He^3 Calculated with a Two-Body Potential," American Physical Society Meeting, Stanford, CA, 1967.
2. T. W.Burkhardt and J. Foster, "A Simple Model for Molecular Binding," Beta Kappa Chi Meeting, Hampton, VI, 1972.
3. T. W. Burkhardt and J. A. Jones, "The Effect of Radiation Pressure on Particles Orbiting the Sun," Beta Kappa Chi Meeting, Philadelphia, PA, 1973.
4. T. W. Burkhardt and W. Li, "The Stark Effect in a Simple Model," Beta Kappa Chi Meeting, Philadelphia, PA, 1973.
5. T. W. Burkhardt, "Renormalization-Group Results for the Blume-Capel Model," Meeting of the German Physical Society, Freudenstadt, 1976.
6. T. W. Burkhardt, "Applications of an Exact Duality-Decimation Transformation for Two-Dimensional Spin Systems on a Square Lattice," Meeting of the German Physical Society, Muenster, 1979.
7. T. W. Burkhardt, "Random-Field Singularities in Position-Space Renormalization-Group Transformations," IUPAP Int. Stat. Phys. Conf., Edmonton, 1980.
8. T. W. Burkhardt and I. Guim, "Surface Critical Behavior in Inhomogeneous Systems," 45th Stat. Mech. Meeting, Rutgers University, 1981.
9. T. W. Burkhardt and I. Guim, "Unusual Surface Critical Behavior in an Inhomogeneous Semi-Infinite Ising Model," 48th Stat. Mech. Meeting, Rutgers University, 1982.
10. T. W. Burkhardt and I. Guim, "Surface Critical Behavior in the Smoothly Inhomogeneous Ising Model," 50th Stat. Mech. Meeting, Rutgers University, 1983.
11. T. W. Burkhardt, "Surface Critical Behavior in Systems with a Bulk Phase Transition," **invited lectures** presented at 20th Winter School of Theoretical Physics, Karpacz, Poland, 1984.
12. T. W. Burkhardt and I.Guim, "Correlation Length in Ising Strips with Free and Fixed Boundary Conditions," 52nd Stat. Mech. Meeting, Rutgers University, 1984.
13. T. W. Burkhardt, "Conformal Invariance and Critical Phenomena in Confined Geometries," **invited lecture** at Workshop on Problems in Magnetism, ITP, Santa Barbara, 1985.
14. T. W. Burkhardt, "Duality of Ordinary and Extraordinary Surfacem Critical Behavior in the Potts Model," 54th Stat. Mech. Meeting, Rutgers University, 1985.
15. T. W. Burkhardt, "Surface Critical Phenomena and Local Operators with Boundary-Induced Critical Profiles," IUPAP Int. Stat. Phys. Conf., Boston, 1986.
16. T. W. Burkhardt and I. Guim, "Bulk, Surface, and Interface Properties of the Ising Model and Conformal Invariance," 56th Stat. Mech. Meeting, Rutgers University, 1986.
17. I. Guim and T. W. Burkhardt, "Adsorption of a Polymer Chain in Two Dimensions," 58th Stat. Mech. Meeting, Rutgers University, 1987.
18. T. W. Burkhardt, "Order-Parameter Profiles in Confined Critical Systems and Conformal Invariance," **invited talk** at 3rd University of California Conference on Statistical Mechanics, 1988.
19. T. W. Burkhardt and I. Guim, "Polymer Adsorption in Two Dimensions and Conformal Invariance," 62nd Stat. Mech. Meeting, Rutgers University, 1989.
20. I. Guim, T. W. Burkhardt, and T. Xue, "Surface Behavior in the Fully-Frustrated Ising Model," 62nd Stat. Mech. Meeting, Rutgers University, 1989.
21. T. W. Burkhardt and T. Xue, "Density Profiles in Confined Critical Systems and Conformal Invariance," 64th Stat. Mech. Meeting, Rutgers University, 1990; March Meeting of the American Physical Society, Cincinnati, 1991.
22. T. W. Burkhardt, "Polymers in Two Dimensions and Conformal Invariance," **invited lecture** at Workshop on Critical Phenomena in Polymer Physics, Peterborough, Ontario, Aug. 1991.
23. T. W. Burkhardt and J.-Y. Choi, "Correlations of the Energy Density and Conformal Invariance in the Ising Model with a Defect Line," 66th Stat. Mech. Meeting, Rutgers University, 1991.
24. I. Guim and T. W. Burkhardt, "Self-Avoiding Walks that Cross a Square," March Meeting of the American Physical Society, Indianapolis, 1992.
25. T. W. Burkhardt, "Conformal Invariance and Critical Phenomena in Confined Geometries," Walecka Symposium, Newport News, 1992.
26. T. W. Burkhardt and J.-Y. Choi, "Correlations of the Energy Density and Conformal Invariance in the Ising Model with a Defect Line," IUPAP Int. Stat. Phys. Conf., Berlin 1992.
27. I. Guim, T. W. Burkhardt, and T. Xue, "Surface Behavior in the Fully-Frustrated Ising Model," IUPAP Int. Stat. Phys. Conf., Berlin 1992.
28-29. T. W. Burkhardt and I. Guim, "Conformal Theory of the Ising Model with   Disordered Boundary Fields," 68th Stat. Mech. Meeting, Rutgers University, 1992; March Meeting of the American Physical Society, Seattle, 1993
30. T. W. Burkhardt, "Semiflexible Polymer in the Half Space and Statistics of the Integral of a Brownian Curve," 70th Stat. Mech. Meeting, Rutgers University, 1993.
31. T. W. Burkhardt and E. Eisenriegler, "Casimir Interaction of Spheres in a Fluid at   the Critical Point," 72nd Stat. Mech. Meeting, Rutgers University, 1994.

32. H. W. J. Blöte, I. Guim, and T.W. Burkhardt, "Universality Class of Trails in Two Dimensions," 74th Stat. Mech. Meeting, Rutgers University, 1995.

33. A. Drewitz, R. Leidl, T. W. Burkhardt, and H. W. Diehl, "Surface Critical Behavior of Binary Alloys and Antiferromagnets: Dependence of the Universality Class on Surface Orientation," 76th Stat. Mech. Meeting, Rutgers University, 1996.

34-36. T. W. Burkhardt, "Free Energy of a Semiflexible Polymer in a Tube," 77th Stat. Mech. Meeting, Rutgers University, 1997; Symposium on the Physics of Soft Materials, University of Pennsylvania, 1997; Statphys 20, Paris, France, 1998.

37. T. W. Burkhardt, "Casimir Interaction of Colloidal Particles in a Fluid at the Critical Point," **invited lecture** at Current Issues in Non-Equilibrium Statistical Mechanics and Materials, Lehigh University, 1997.

38. T. W. Burkhardt, "Semiflexible Polymer in Confined Geometries," **invited lecture** at conference on Applications of Field Theory to Statistical Physics, Bonn, Germany, 1998.

39. T. W. Burkhardt and I. Guim, "Free Energy of a Flexible Self-Avoiding Polymer in a Tube," 80th Stat. Mech. Meeting, Rutgers University, 1998.

40-41. T. W. Burkhardt, "Inelastic Collapse of a Randomly Accelerated Particle," Rencontres de Mécanique Statistique, Paris, 2000; 84th Stat. Mech. Meeting, Rutgers University, 2000.

42. T. W. Burkhardt, "Confined Polymers, Inelastic Collapse of Driven Granular Matter, and the Fokker-Planck Equation," **invited lecture** at the 5th Claude Itzykson Meeting: Dynamics of Nonequilibrium Systems, Paris (Saclay), 2000.

43. T. W. Burkhardt, "Absorption of a Randomly Accelerated Particle: Recent Results for Partially-Absorbing and Inelastic Boundaries," **invited lecture** at Statphys 21, Cancun, Mexico, 2001.

44. A. Lamura, T. W. Burkhardt, and G. Gompper, "Semi-flexible Polymer in a Uniform Force Field," 86th Stat. Mech. Meeting, Rutgers University, 2001.

45. S. Kotsev and T. W. Burkhardt, "Mean Absorption Time of a Randomly Accelerated Particle: Results for Partially Absorbing and Inelastic Boundaries," 92nd Stat. Mech. Meeting, Rutgers University, 2004.

46. T. W. Burkhardt and S. Kotsev, "Equilibrium of a Confined, Randomly Accelerated, Inelastic Particle," 92nd Stat. Mech. Meeting, Rutgers University, 2004.

47. T. W. Burkhardt, "The Random Acceleration Process, with Applications to Granular Matter and Polymers," **invited lecture** at workshop on Principles of the Dynamics of Non-Equilibrium Systems, Isaac Newton Institute for Mathematical Sciences, Cambridge, England, 2006.

48. T. W. Burkhardt, "Extreme Value Statistics of Random Acceleration and Related Processes," at conference on Extreme Events in Complex Dynamics, Dresden, Germany, 2006.

49. T. W. Burkhardt, G. Györgyi, N. R. Moloney, K. Ozogany, and Z. Rácz, "Extreme Value Statistics in Correlated Systems," talk by N. R. Moloney at 23d International Conference on Statistical Physics, Genova, Italy, 2007.

50. T. W. Burkhardt, G. Györgyi, N. R. Moloney, and Z. Rácz, "Extreme Value Statistics in Correlated Systems," 98th Stat. Mech. Meeting, Rutgers University, 2007.

51. T. W. Burkhardt, "Extreme Value Statistics of Random Acceleration and Related Processes," **invited lecture** at the 16th Itzykson Meeting: Extremes and Records, Paris (Saclay), 2011.

52. T. W. Burkhardt, "Equilibrium of a Fluctuating Polymer Chain in a Channel," ," **invited lecture** at the Gunton Symposium, Lehigh University, 2017.

Seminars and colloquia since 1981:

1981-82 "Modern Theory of Critical Phenomena," Temple University; "Surface Critical Behavior in inhomogeneous Systems," University of Munich.

1982-83 "Modern Theory of Critical Phenomena," University of Toronto; "Surface Critical Behavior of Inhomogeneous Systems," Temple University.

1983-84 "Surface Critical Behavior in Inhomogeneous Systems," KFA-Jülich; "Surface Critical Behavior in Systems with a Bulk Phase Transition," Jagellonian University Krakau.

1984-85 "Surface and Interface Critical Phenomena," University of Konstanz, University of Poznan; "Roughening Transition," CRTBT-Grenoble; "Introduction to Real Space Renormalization," University of Munich; "Conformal Invariance and Critical Phenomena in Confined Geometries," CENS-Paris, ILL-Grenoble, University of Munich, University of Geneva, KFA-Jülich, Free University-Berlin, University of Poznan, University of Leipzig, University of Mainz.

1985-86 "Conformal Invariance and Critical Phenomena in Confined Geometries," Brooklyn Polytechnic, Temple University, University of Maine, University of Bonn, TH-Aachen, University of Essen; "Amateur Astronomy," Lincoln University (speaker at observatory dedication.)

1986-87 "Conformal Invariance and Critical Phenomena in Confined Geometries," University of Munich, KFA-Jülich.

1987-88 "Conformal Invariance and Critical Phenomena in Confined Geometries," Temple University, University of Cologne.

<u>1988-89</u>"Conformal Invariance and Critical Phenomena in Confined Geometries, University of Alberta, University of Washington; "Polymer Adsorption and Conformal Invariance," Simon Fraser University.
<u>1990-91</u> "Polymer Adsorption and Conformal Invariance," University of Mainz; "Conformal Invariance and Critical Phenomena in Confined Geometries", Clarkson University; "Phase Transitions and Universality", Lebanon Valley College.
<u>1991-92</u> "Polymer Adsorption and Conformal Invariance," University of Maine.
<u>1992-93</u> "Conformal Invariance and Critical Phenomena in Confined Geometries", KFA-Jülich; "Conformal Theory of Phase Transitions," University of Delaware, Technical University, Munich.
<u>1993-94</u> "Ordinary and Extraordinary Transitions of Semi-Infinite Magnetic Systems," University of Munich; "Milestones in Musical Acoustics," West Chester University.
<u>1994-95</u> "Milestones in Musical Acoustics," Adult Studies Program of Kaiserman Branch of Jewish Community Centers; "Casimir Interaction of Colloidal Particles in a Fluid at the Critical Point," University of Leiden, University of Essen, KFA-Jülich.
<u>1995-96</u> "Casimir Interaction of Colloidal Particles in a Fluid at the Critical Point," Temple University
<u>1996-97</u> "Casimir Interaction of Colloidal Particles in a Fluid at the Critical Point," Lehigh University.
<u>1997-98</u> "Universal Properties of Long Polymer Chains in Solution," Temple University.
<u>1999-00</u> "Conformational Statistics of Confined Polymers," FZ-Jülich, TH Aachen, Universität Essen, Ecole Normale Supérieure (Paris) "Confined Polymers, Inelastic Collapse of Driven Granular Matter, and the Fokker-Planck Equation," Université de Nancy, ILL-Grenoble.
<u>2000-01</u> "From Random Walks to Rubber: The Statistics of Long Polymer Chains," Millersville University.
<u>2001-02</u> "Absorption of a Randomly Accelerated Particle," University of Pittsburgh, RWTH Aachen.
<u>2002-03</u> "Statistics of a Randomly Accelerated Particle," Temple University, Hunter College CCNY.
<u>2005-06</u> "The Random Acceleration Process, with Applications to Polymers and Granular Matter," University of West Virginia.
<u>2006-07</u> "The Random Acceleration Process, with Applications to Polymers and Granular Matter and an Introduction to Extreme Statistics," The Open University (Milton-Keynes, UK), Eötvös University (Budapest), FZ-Jülich, Universität Duisburg-Essen, TH Aachen, Université de Nancy.
<u>2008-09</u> "From Random Walks to Rubber: The Statistics of Long Polymer Chains," Millersville University.
<u>2010-17</u> "From Random Walks to Rubber: The Statistics of Long Polymer Chains," Rutgers University – Newark, Howard University, Lafayette College, Millersville University, Physics Club Temple University "Physics of Music," Physics Club Temple University.

Teaching:
About 20 different courses, ranging from conceptual introductory courses to advanced graduate courses.
Taught "Acoustics," renamed "Science of Sound," almost every year since 1985.
Guest lecturer on "Einstein and Relativity" in Intellectual Heritage, on "Solitons and on "Phase Transitions and the Renormalization Group" in graduate Mathematics courses.
Course "Musical Acoustics" at Curtis Institute of Music (1988).
Graduate course "Conformal Invariance in Statistical Mechanics" at University of Washington (1989), Temple University (1990), University of Munich (1993).

Lindback Award for Distinguished Teaching (Lincoln University, 1972).
Italia-Eire Foundation Distinguished Teacher of the Year (Temple University, 2008).