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Dereceleri: Bachelor of Science in Physics, Massachusetts Institute of Technology, 1971
Bachelor of Science in Chemistry, Massachusetts Institute of Technology, 1971
Master of Science in Physics, University of Illinois at Urbana-Champaign, 1972
Ph.D. in Physics, University of Illinois at Urbana-Champaign, 1977

Eğitim ve Mesleki Deneyimi:

- 1967 Robert Kolej Lisesi, İstanbul'dan birincilikle mezuniyet
1967-71 M.I.T.'de lisans öğrencisi, her yıl M.I.T.'den bursla Kimya ve Fizik'ten çift lisans 5 yıllık programı 4 yılda tamamlanmıştır.
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1970-71 Kuantum Mekanik ders koordinatörü ve öğretim üyesi, M.I.T. Eğitim Araştırma Merkezi
1971 Amerikan Kimya Enstitüsü Öğrenci Ödülü
1971 Phi Beta Kappa Honorary Scholarship Society'ye seçilmiştir.
1971-76 Illinois Üniversitesi Fizik Bölümünde Prof.Dr. M. Wortis'le lisansüstü öğrencisi University Fellowship, Araştırma ve Öğretim Asistanlıklarıyla tam destekli
1975 yazı Guest Junior Research Associate, Fizik Bölümü, Brookhaven National Laboratory
1977-79 Postdoctoral Research Fellow, Fizik Bölümü, Harvard Üniversitesi
1979 yazı USA Ulusal Bilim Akademisinin SSCB Bilim Akademisine delegasyonu üyesi
1979-82 Assistant Professor of Physics, Massachusetts Institute of Technology
1981-82 Danışman, IBM Zürich Laboratuvarı
1981-85 Alfred P. Sloan Fellow
1982-88 Associate Professor of Physics, Massachusetts Institute of Technology
1982 M.I.T. Kuramsal Yoğun Madde Fiziği Merkezinin iki kurucu öğretim üyesinden biri
1/1983 Visiting Associate Professor of Physics, Catholic University of Rio de Janeiro, Brezilya
6/1984 M.I.T.'de tenure kazanılması, normal süreden bir yıl erken olarak
4/1987 Visiting Associate Professor of Physics, Oxford Üniversitesi, İngiltere
1987 M.I.T. Fizik Bölümü Buechner Eğitim Ödülü
4/1988 Visiting Associate Professor of Physics, Katholieke Universiteit, Leuven, Belçika; Solvay Lecturer, Brüksel, Belçika; Ehrenfest Lecturer, Leiden, Hollanda
1988-04 Professor of Physics, Massachusetts Institute of Technology
1988 TÜBİTAK Bilim Ödülü
1988- Fellow of the American Physical Society (APS üyelerinin yılda binde beşi seçilir)
1989- Consulting Professor, Bilkent Üniversitesi
1993-94 Disiplinlerarası Araştırma Grubu lideri, Malzeme Bilimi ve Mühendisliği Merkezi, M.I.T.
1994,97-99 Kurucu ve Ortak Başkan, İstanbul Teknik Üniversitesi İstatistik Fizik Günleri. Proceedings Editörü.
1995 M.I.T. Fen Fakültesi Lisansüstü Eğitimde Mükemmellik Ödülü
1996 Seçkin Türk Bilimcisi Ünvanı, Türkiye Bilimler Akademisi
1996- Adjunct Professor, Boğaziçi Üniversitesi
1997-99 Misafir Profesör, İstanbul Teknik Üniversitesi
1999-04 M.I.T.'den izinli
1999-05 Fizik Profesörü, İstanbul Teknik Üniversitesi
1999- Asli Üye, Türkiye Bilimler Akademisi (2008- Akademi Konseyi Üyesi)
2000- Yönetim Kurulu Üyesi (2007- Başkanı), TÜBİTAK Feza Gürsey Temel Bilimler Araştırma Enstitüsü
2000-03 Fizik Bölüm Başkanı, İstanbul Teknik Üniversitesi
2000-04 Academic Officer, Project Interphase, M.I.T.
2003-04 Fen-Edebiyat Fakültesi Dekanı, İstanbul Teknik Üniversitesi
2003- Kurucu ve Yönetici, M.I.T.-Turkey Freshman Scholars Program
2004- Emeritus Professor of Physics, Massachusetts Institute of Technology
2005- Fizik Profesörü, Koç Üniversitesi
2007 Humboldt Research Award
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Tezleri:

1. "Solutions of Binding Site Models of Membranes"
B.S. Thesis, 211 sayfa (M.I.T., 1971).
2. "Phase Transitions and Critical Phenomena: Universality and Global Multicritical Phase Diagrams from Position-Space Renormalization-Group Studies"
Ph.D. Thesis, 83 sayfa (U. of Illinois, 1977).

Araştırma Makaleleri:

3. "Uniaxial and Biaxial Ordering in Magnetic Crystals: Molecular-Field Theory"
J. Sivardière, A.N. Berker, and M. Wortis, Phys. Rev. B 7, 343-351 (1973).
4. "Critical Interactions for the Triangular Spin-s Ising Model by a Spin-Restructuring Transformation"
A.N. Berker, Phys. Rev. B 12, 2752-2758 (1975).
5. "Blume-Emery-Griffiths-Potts Model in Two Dimensions: Phase Diagram and Critical Properties from a Position-Space Renormalization Group"
A.N. Berker and M. Wortis, Phys. Rev. B 14, 4946-4963 (1976).
6. "Exact Renormalization Group with Griffiths Singularities and Spin-Glass Behavior: The Random Ising Chain"
G. Grinstein, A.N. Berker, J. Chalupa, and M. Wortis, Phys. Rev. Lett. 36, 1508-1511 (1976).
7. "Renormalization-Group Treatment of a Potts Lattice Gas for Krypton Adsorbed onto Graphite"
A.N. Berker, S. Ostlund, and F.A. Putnam, Phys. Rev. B 17, 3650-3665 (1978).
8. "Phase Transitions in Gases Adsorbed onto Graphite and the Position-Space Renormalization-Group Method"
A.N. Berker, S. Ostlund, and F.A. Putnam, in Recent Advances in Engineering Science, ed. R.L. Sierakowski (University of Florida, 1978), pp. 361-365.
9. "Multicritical Phase Diagram of Gases Adsorbed on Graphite: Temperature Variation and Finite Size Effects"
S. Ostlund and A.N. Berker, Phys. Rev. Lett. 42, 843-846 (1979).
10. "Superfluidity and Phase Separation in Helium Films"
A.N. Berker and D.R. Nelson, Phys. Rev. B 19, 2488-2503 (1979).
11. "Two-Dimensional XY Magnets with Annealed Non-Magnetic Impurities"
A.N. Berker and D.R. Nelson, J. Appl. Phys. 50, 1799-1801 (1979).
12. "A Binding Site Model of Membrane Transport: Binary and Cooperative Flows"
M.H. Lee, A.N. Berker, H.E. Stanley, and A. Essig, J. Membrane Biology 50, 205-224 (1979).
13. "Renormalisation-Group Calculations of Finite Systems: Order Parameter and Specific Heat for Epitaxial Ordering"
A.N. Berker and S. Ostlund, J. Phys. C 12, 4961-4975 (1979).
14. "First- and Second-Order Phase Transitions in Potts Models: Renormalization-Group Solution"
B. Nienhuis, A.N. Berker, E.K. Riedel, and M. Schick, Phys. Rev. Lett. 43, 737-740 (1979).
15. "First- and Second-Order Phase Transitions of Infinite-State Potts Models in One Dimension"
A.N. Berker, D. Andelman, and A. Aharony, J. Phys. A 13, L413-418 (1980).
16. "Structural Transitions between Epitaxially Ordered Phases in Adsorbed Submonolayers"
S. Ostlund and A.N. Berker, Phys. Rev. B 21, 5410-5423 (1980).
17. "Island Growth and Orientational Locking of Potassium Intercalated in Graphite"
A.N. Berker, N. Kambe, G. Dresselhaus, and M.S. Dresselhaus, Phys. Rev. Lett. 45, 1452-1456 (1980).
18. "Intercalate Layer Structure in Graphite-Alkali Metal Compounds"
M.S. Dresselhaus, N. Kambe, A.N. Berker, and G. Dresselhaus, Synthetic Metals 2, 121-131 (1980).
19. "Commensurate Order, Multicritical Points, and Finite Sizes in Adsorbed Systems"
A.N. Berker, in Ordering in Two Dimensions, ed. S.K. Sinha (Elsevier, New York, 1980), pp. 9-15.
20. "Honeycomb Lattice: Application to Adsorbed Systems"
W. Kinzel, M. Schick, and A.N. Berker, in Ordering in Two Dimensions, ed. S.K. Sinha (Elsevier, New York, 1980), pp. 381-383.

21. "Ground-State Entropy and Algebraic Order at Low Temperatures"
A.N. Berker and L.P. Kadanoff, *J. Phys. A* 13, L259-264 (1980).
corrigendum 13, 3786 (1980).
22. "Frustrated Spin-Gas Model for Doubly Reentrant Liquid Crystals"
A.N. Berker and J.S. Walker, *Phys. Rev. Lett.* 47, 1469-1472 (1981).
23. "q-State Potts Models in d Dimensions: Migdal-Kadanoff Approximation"
D. Andelman and A.N. Berker, *J. Phys. A* 14, L91-96 (1981).
24. "Critical Exponents and Marginality of the Four State Potts Model: Monte Carlo Renormalization Group"
R.H. Swendsen, D. Andelman, and A.N. Berker, *Phys. Rev. B* 24, 6732-6735 (1981).
25. "Exact Criticality Condition for Randomly Layered Ising Models with Competing Interactions on a Square Lattice"
M. Kardar and A.N. Berker, *Phys. Rev. B* 26, 219-225 (1982).
26. "Scaling for First-Order Phase Transitions in Thermodynamic and Finite Systems"
M.E. Fisher and A.N. Berker, *Phys. Rev. B* 26, 2507-2513 (1982).
27. "Random Field Effects in Metamagnet Tricritical Point Measurements"
R.J. Birgeneau and A.N. Berker, *Phys. Rev. B* 26, 3751-3757 (1982).
28. "Hyperscaling and Crossover Exponents near the Percolation Threshold"
Y. Gefen, A. Aharony, Y. Shapir, and A.N. Berker, *J. Phys. C* 15, L801-805 (1982).
29. "First- and Second-Order Phase Transitions in Potts Models: Competing Mechanisms (invited)"
A.N. Berker and D. Andelman, *J. Appl. Phys.* 53, 7923-7926 (1982).
30. "Spin-Glass Behavior in Frustrated Ising Models with Chaotic Renormalization-Group Trajectories"
S.R. McKay, A.N. Berker, and S. Kirkpatrick, *Phys. Rev. Lett.* 48, 767-770 (1982).
31. "Commensurate-Incommensurate Phase Diagrams for Overlayers from a Helical Potts Model"
M. Kardar and A.N. Berker, *Phys. Rev. Lett.* 48, 1552-1555 (1982).
32. "Amorphously Packed, Frustrated Hierarchical Models: Chaotic Rescaling and Spin-Glass Behavior"
S.R. McKay, A.N. Berker, and S. Kirkpatrick, *J. Appl. Phys.* 53, 7974-7976 (1982).
33. "Cratering Due to Surface Defects in the Gaussian Model"
E. Nowak, J.M. Deutch, and A.N. Berker, *J. Chem. Phys.* 78, 529-535 (1983).
34. "Critical Behavior of the Three-State Potts Model: Monte Carlo Renormalization Group"
R.H. Swendsen and A.N. Berker, *Phys. Rev. B* 28, 3897-3903 (1983).
35. "Study of High-Order Reconstructions of the Si(100) Surface"
J. Ihm, D.H. Lee, J.D. Joannopoulos, and A.N. Berker, *J. Vac. Sci. Technol. B* 1, 705-708 (1983).
36. "Biaxial Order in Liquid Crystals and their Mixtures: A Potts-Ising Model"
R.G. Caflisch, Z.-Y. Chen, A.N. Berker, and J.M. Deutch, *Phys. Rev. A* 30, 2562-2567 (1984).
37. "Oxygen Chemisorbed on Ni(100): A Renormalization-Group Study of the Global Phase Diagram"
R.G. Caflisch and A.N. Berker, *Phys. Rev. B* 29, 1279-1286 (1984).
38. "Magnetic Susceptibilities of Cluster-Hierarchical Models"
S.R. McKay and A.N. Berker, *Phys. Rev. B* 29, 1315-1320 (1984).
39. "Scale-Invariant Quenched Disorder and its Stability Criterion at Random Critical Points"
D. Andelman and A.N. Berker, *Phys. Rev. B* 29, 2630-2635 (1984).
40. "Ordering under Random Fields: Renormalization-Group Arguments"
A.N. Berker, *Phys. Rev. B Rapid Comm.* 29, 5243-5245 (1984).
41. "Orderings of a Stacked Frustrated Triangular System in Three Dimensions"
D. Blankschtein, M. Ma, A.N. Berker, G.S. Grest, and C.M. Soukoulis, *Phys. Rev. B Rapid Comm.* 29, 5250-5252 (1984).
42. "Fully and Partially Frustrated Simple-Cubic Ising Models: Landau-Ginzburg-Wilson Theory"
D. Blankschtein, M. Ma, and A.N. Berker, *Phys. Rev. B* 30, 1362-1365 (1984).

43. "Orderings and Renormalization-Group Flows of a Stacked Frustrated Triangular System in Three Dimensions"
A.N. Berker, G.S. Grest, C.M. Soukoulis, D. Blankschtein, and M. Ma, *J. Appl. Phys.* 55, 2416-2418 (1984).
44. "Hierarchical Models and Chaotic Spin Glasses"
A.N. Berker and S.R. McKay, *J. Stat. Phys.* 36, 787-793 (1984).
45. "Chaotic Spin Glasses: An Upper Critical Dimension (invited)"
S.R. McKay and A.N. Berker, *J. Appl. Phys.* 55, 1646-1648 (1984).
46. "Theory of Reentrant Melting of Krypton Adsorbed on Graphite"
R.G. Caflisch, A.N. Berker, and M. Kardar, *J. Vac. Sci. Technol. A* 3, 1592-1593 (1985).
47. "Reentrant Melting of Krypton Adsorbed on Graphite and the Helical Potts-Lattice-Gas Model"
R.G. Caflisch, A.N. Berker, and M. Kardar, *Phys. Rev. B* 31, 4527-4537 (1985).
48. "Modified Hyperscaling Relation for Phase Transitions under Random Fields"
A.N. Berker and S.R. McKay, *Phys. Rev. B* 33, 4712-4715 (1986).
49. "Quadruple Reentrance (Nematic-Smectic A_d -Nematic-Smectic A_d -Nematic-Smectic A_1) from the Frustrated Spin-Gas Model of Liquid Crystals"
J.O. Indekeu and A.N. Berker, *Phys. Rev. A* 33, 1158-1162 (1986).
50. "Molecular Tail Lengths, Dipole Pairings, and Multiple Reentrance Mechanisms of Liquid Crystals"
J.O. Indekeu and A.N. Berker, *Physica A (Utrecht)* 140, 368-375 (1986).
51. "Reentrant Transition Enthalpies of Liquid Crystals: The Frustrated Spin-Gas Model and Experiments"
J.O. Indekeu, A.N. Berker, C. Chiang, and C.W. Garland, *Phys. Rev. A* 35, 1371-1375 (1987).
52. "The Frustrated Spin-Gas Theory of Multiply Reentrant Liquid Crystals"
A.N. Berker and J.O. Indekeu, in *Incommensurate Crystals, Liquid Crystals, and Quasi-Crystals*, eds. J.F. Scott and N.A. Clark (Plenum, New York, 1987), pp.205-213.
53. "Ab-Initio Statistical Mechanics of GeTe"
K.M. Rabe, J.D. Joannopoulos, and A.N. Berker, in *18th International Conference on the Physics of Semiconductors*, ed. O. Engstrom (World Scientific, Singapore, 1987), Vol. 2, pp. 1221-1224.
54. "Molecular Structure and Reentrant Phases in Polar Liquid Crystals"
J.O. Indekeu and A.N. Berker, *J. Phys. (Paris)* 49, 353-362 (1988).
55. "Equimagnetization Lines in the Hybrid-Order Phase Diagram of the $d=3$ Random-Field Ising Model (invited)"
S.R. McKay and A.N. Berker, *J. Appl. Phys.* 64, 5785-5786 (1988).
56. "Random-Field Distributions of d -Dimensional Ising Models: Evolution under Scale Change and Fixed Distributions"
S.R. McKay and A.N. Berker, in *Fractal Aspects of Materials: Disordered Systems*, eds. D.A. Weitz, L.M. Sander, and B.B. Mandelbrot (Materials Research Society, Pittsburgh, 1988), pp. 215-217.
57. "Mixtures in the Frustrated Spin-Gas Theory of Reentrant Polar Liquid Crystals"
J.F. Marko, J.O. Indekeu, and A.N. Berker, *Phys. Rev. A* 39, 4201-4206 (1989).
58. "Pressure Studies on Phase Transitions in 4-alkoxyphenyl-4'-nitrobenzoyloxybenzoates"
V.N. Raja, B.R. Ratna, R. Shashidhar, G. Heppke, C. Bahr, J.F. Marko, J.O. Indekeu, and A.N. Berker, *Phys. Rev. A Rapid Comm.* 39, 4341-4344 (1989).
59. "Random-Field Mechanism in Random-Bond Multicritical Systems"
K. Hui and A.N. Berker, *Phys. Rev. Lett.* 62, 2507-2510 (1989).
erratum 63, 2433 (1989).
60. "Harris Criterion for Direct and Orthogonal Quenched Randomness"
A.N. Berker, *Phys. Rev. B* 42, 8640-8642 (1990).
61. "Magnetization of the d -Dimensional Random-Field Ising Model: An Intermediate Critical Dimension"
S.R. McKay and A.N. Berker, in *New Trends in Magnetism*, eds. M.D. Coutinho-Filho and S.M. Rezende (World Scientific, Singapore, 1990), pp. 96-102.

62. "Finite-Temperature Phase Diagram of Vicinal Si(100) Surfaces"
O.L. Alerhand, A.N. Berker, J.D. Joannopoulos, D. Vanderbilt, R.J. Hamers, and J.E. Demuth, *Phys. Rev. Lett.* **64**, 2406-2409 (1990).
63. "Phase Transitions on Misoriented Si(100) Surfaces"
O.L. Alerhand, A.N. Berker, J.D. Joannopoulos, and D. Vanderbilt, in 20th International Conference on the Physics of Semiconductors, eds. E.M. Anastassakis and J.D. Joannopoulos (World Scientific, Singapore, 1990), pp.2181-2188.
64. "Finite-Temperature Phase Diagram of Vicinal Si(100) Surfaces: Alerhand et al Reply"
O.L. Alerhand, A.N. Berker, J.D. Joannopoulos, D. Vanderbilt, R.J. Hamers, and J.E. Demuth, *Phys. Rev. Lett.* **66**, 962 (1991).
65. "Monte Carlo Mean-Field Theory and Frustrated Systems in Two and Three Dimensions"
R.R. Netz and A.N. Berker, *Phys. Rev. Lett.* **66**, 377-380 (1991).
66. "Hard-Spin Mean-Field Theory: Formulation for Ising, XY, and Other Models"
R.R. Netz and A.N. Berker, *J. Appl. Phys.* **70**, 6074-6076 (1991).
67. "Monte Carlo Mean-Field Theory and Frustrated Systems in Two and Three Dimensions: Netz and Berker Reply"
R.R. Netz and A.N. Berker, *Phys. Rev. Lett.* **67**, 1808 (1991).
68. "Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling"
W. Hoston and A.N. Berker, *Phys. Rev. Lett.* **67**, 1027-1030 (1991).
69. "Dimensionality Effects on the Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling: Mean-Field and Renormalization-Group Studies"
W. Hoston and A.N. Berker, *J. Appl. Phys.* **70**, 6101-6103 (1991).
70. "Absence of Temperature-Driven First-Order Phase Transitions in Systems with Random Bonds"
A.N. Berker and K. Hui, in Science and Technology of Nanostructured Magnetic Materials, eds. G.C. Hadjipanayis and G.A. Prinz (Plenum, New York, 1991), pp. 411-417.
71. "Absence of Temperature-Driven First-Order Phase Transitions in Systems with Random Bonds (invited)"
A.N. Berker, *J. Appl. Phys.* **70**, 5941-5945 (1991).
72. "Smectic C Order, In-Plane Domains, and Nematic Reentrance in a Microscopic Model of Liquid Crystals"
R.R. Netz and A.N. Berker, *Phys. Rev. Lett.* **68**, 333-336 (1992).
73. "Microscopic Liquid Crystal Theory of Nematic Reentrance, Smectic C Ordering, and In-Plane Domain Formation"
R.R. Netz and A.N. Berker, in Phase Transitions in Liquid Crystals, ed. S. Martellucci and A.N. Chester (Plenum, New York, 1992), pp. 109-124.
74. "Statistical Mechanics of Phase Transitions with a Hierarchy of Structures"
A.N. Berker, R.G. Caflisch, and M. Kardar, in Hierarchically Structured Materials, ed. I.A. Aksay (Materials Research Society, Pittsburgh, 1992), pp. 309-312.
75. "Renormalization-Group Theory of an Internal Critical Endpoint Structure: The Blume-Emery-Griffiths Model with Biquadratic Repulsion"
R.R. Netz and A.N. Berker, *Phys. Rev. B* **47**, 15019-15022 (1993).
76. "Critical Behavior Induced by Quenched Disorder"
A.N. Berker, *Physica A* **194**, 72-76 (1993).
77. "Phase Diagram of the Ising Model on the Square Lattice with Crossed Diagonal Bonds"
A.N. Berker and K. Hui, *Phys. Rev. B* **48**, 12393-12398 (1993).
78. "New Critical and Multicritical Phenomena Induced by Quenched Random Bonds or Fields"
A.N. Berker and A. Falicov, *Tr. J. Phys.* **18**, 347-353 (1994).
79. "Hard-Spin Mean-Field Theory"
A.N. Berker, A. Kabakçioğlu, R.R. Netz, and M.C. Yalabık, *Tr. J. Phys.* **18**, 354-357 (1994).
80. "Reentrance and Other Phenomena in Polar Liquid Crystals: A Microscopic Theory with Frustration"
A.N. Berker, J.O. Indekeu, and R.R. Netz, *Tr. J. Phys.* **18**, 358-360 (1994).

81. "Spin-Wave Bound-State Energies from an Ising Model"
D.P. Aalberts and A.N. Berker, Phys. Rev. B 49, 1073-1078 (1994).
82. "Closed-Form Solutions and Free Energy of Hard-Spin Mean-Field Theory of a Fully Frustrated System"
A. Kabakçioğlu, A.N. Berker, and M.C. Yalabık, Phys. Rev. E 49, 2680-2683 (1994).
83. "Asymptotic Quantum Relevance in the Finite-Temperature Phase Diagram of the tJ Model: Renormalization-Group Theory in One, Two, and Three Dimensions"
A. Falicov and A.N. Berker, Tr. J. Phys. 19, 127-137 (1995).
84. "Finite-Temperature Phase Diagram of the tJ Model: Renormalization-Group Theory"
A. Falicov and A.N. Berker, Phys. Rev. B 51, 12458-12463 (1995).
85. "Correlated Random-Chemical-Potential Model for the Phase Transitions of Helium Mixtures in Porous Media"
A. Falicov and A.N. Berker, Phys. Rev. Lett. 74, 426-429 (1995).
86. "Renormalization-Group Theory of the Random-Field Ising Model in Three Dimensions"
A. Falicov, A.N. Berker, and S.R. McKay, Phys. Rev. B 51, 8266-8269 (1995).
87. "Vicinal Si(100) Surfaces under External Strain"
K. Cho, J.D. Joannopoulos, and A.N. Berker, Phys. Rev. B 53, 1002-1006 (1996).
88. "Tricritical and Critical-Endpoint Phenomena under Random Bonds"
A. Falicov and A.N. Berker, Phys. Rev. Lett. 76, 4380-4383 (1996).
89. "Strong Violation of Critical Phenomena Universality under Quenched Bond Randomness"
A. Falicov and A.N. Berker, Tr. J. Phys. 21, 59-63 (1997).
90. "Renormalization-Group Calculation of Local Magnetizations and Correlations: Random-Bond, Random-Field, and Spin-Glass Systems"
D. Yeşiltepe and A.N. Berker, Phys. Rev. Lett. 78, 1564-1567 (1997).
91. "Renormalization-Group Study of Superfluidity and Phase Separation of Helium Mixtures Immersed in Nonrandom Aerogel"
A. Lopatnikova and A.N. Berker, Phys. Rev. B 55, 3798-3802 (1997).
92. "Renormalization-Group Study of Superfluidity and Phase Separation of Helium Mixtures Immersed in a Disordered Medium"
A. Lopatnikova and A.N. Berker, Phys. Rev. B 56, 11865-11871 (1997).
93. "Quenched Bond Randomness: Superfluidity in Porous Media and the Strong Violation of Universality"
A. Falicov and A.N. Berker, J. Low Temp. Phys. 107, 51-75 (1997).
94. "Global Random-Field Spin-Glass Phase Diagrams in Two and Three Dimensions"
G. Migliorini and A.N. Berker, Phys. Rev. B 57, 426-431 (1998).
95. "The Renormalization-Group Microscope: The Local Statistical Mechanics of Heterogeneous Systems"
D. Yeşiltepe and A.N. Berker, Tr. J. Phys. 23, 77-87 (1999).
96. "Strongly Asymmetric Tricriticality of Quenched Random-Field Systems"
A. Kabakçioğlu and A.N. Berker, Phys. Rev. Lett. 82, 2572-2574 (1999).
97. "First-Order Phase Transition and Evidence for Frustrations in Polyampholytic Gels"
Y. Takeoka, A.N. Berker, R. Du, T. Enoki, A. Grosberg, M. Kardar, T. Oya, K. Tanaka, G. Wang, X. Yu, and T. Tanaka, Phys. Rev. Lett. 82, 4863-4865 (1999).
98. "Finite-Temperature Phase Diagram of the Hubbard Model"
G. Migliorini and A.N. Berker, Eur. Phys. J. B Rapid Note 17, 3-6 (2000).
99. "Multiplicity of Ordered Phases in Frustrated Systems Obtained from Hard-Spin Mean-Field Theory"
H. Kaya and A.N. Berker, Phys. Rev. E Rapid Comm. 62, R1469-1472 (2000).
100. "The A-C-A Reentrant Phase Diagram of Mixed Liquid Crystals: A Photon Transmission Study"
H. Özbek, S. Yıldız, Ö. Pekcan, and A.N. Berker, Int. J. Mod. Phys. B 15, 2161-2167 (2001).
101. "A Phase Diagram of Smectogen-Non-Smectogen Binary Mixture: A Photon Transmission Study"
S. Yıldız, I.E. Serhatlı, Ö. Pekcan, A.N. Berker, and H. Özbek, Int. J. Mod. Phys. B 16, 3959-3970 (2002).

102. “Smectic A-C-A Liquid Crystal Reentrance: A Photon Transmission Study”
H. Özbek, S. Yıldız, Ö. Pekcan, and A.N. Berker, *Phase Transitions* 75, 301-308 (2002).
103. “Comparative Study of Liquid Crystalline Ordering in a Monomer, Linear Polymer, and Graft Copolymer by the Photon Transmission Technique”
H. Özbek, S. Yıldız, Ö. Pekcan, Y. Hepuzer, Y. Yağcı, A.N. Berker, G. Galli, and E. Chiellini, *Phase Transitions* 76, 991-998 (2003).
104. “High-Degeneracy Ordering of Polyampholyte Gels from a Random-Field Model”
D.P. Aalberts and A.N. Berker, *ARI – Bulletin of the Istanbul Technical University* 53, 2-5 (2003).
105. “Scaling of Thermal Hysteresis at Nematic-Smectic A Phase Transition in a Binary Mixture”
S. Yıldız, Ö. Pekcan, A.N. Berker, and H. Özbek, *Phys. Rev. E* 69, 031705, 1-6 (2004).
106. “Two Superconducting Phases in the $d=3$ Hubbard Model: Phase Diagram and Specific Heat from Renormalization-Group Theory”
M. Hinczewski and A.N. Berker, *Eur. Phys. J. B* 48, 1-17 (2005).
107. “Multicritical Point Relations in Three Dual Pairs of Hierarchical-Lattice Ising Spin-Glasses”
M. Hinczewski and A.N. Berker, *Phys. Rev. B* 72, 144402, 1-6 (2005).
108. “Phase Diagrams and Crossover in Spatially Anisotropic $d=3$ Ising, XY Magnetic and Percolation Systems: Exact Renormalization-Group Solutions of Hierarchical Models”
A. Erbaş, A. Tuncer, B. Yücesoy, and A.N. Berker, *Phys. Rev. E* 72, 026129, 1-6 (2005).
109. “ $d=3$ Anisotropic and $d=2$ tJ Models: Phase Diagrams, Thermodynamic Properties, and Chemical Potential Shift”
M. Hinczewski and A.N. Berker, *Eur. Phys. J. B* 51, 461-472 (2006).
110. “Inverted Berezinskii-Kosterlitz-Thouless Singularity and High-Temperature Algebraic Order in an Ising Model on a Scale-Free Hierarchical-Lattice Small-World Network”
M. Hinczewski and A.N. Berker, *Phys. Rev. E* 73, 066126, 1-22 (2006).
111. “Field-Driven Hysteresis of the $d=3$ Ising Spin Glass: Hard-Spin Mean-Field Theory”
B. Yücesoy and A.N. Berker, *Phys. Rev. B* 76, 014417, 1-4 (2007).
112. “Quantum-Mechanically Induced Asymmetry in the Phase Diagrams of Spin-Glass Systems”
C.N. Kaplan and A.N. Berker, *Phys. Rev. Lett.* 100, 027204, 1-4 (2008).
113. “Excitation Spectrum Gap and Spin-Wave Velocity of XXZ Heisenberg Chains: Global Renormalization-Group Calculation”
O.S. Saryyer, A.N. Berker, and M. Hinczewski, *Phys. Rev. B* 77, 134413, 1-10 (2008).
114. “High-Precision Thermodynamic and Critical Properties from Tensor Renormalization-Group Flows”
M. Hinczewski and A.N. Berker, *Phys. Rev. E* 77, 011104, 1-6 (2008).
115. “Reentrant and Forward Phase Diagrams of the Anisotropic Three-Dimensional Ising Spin Glass”
C. Güven, A.N. Berker, M. Hinczewski, and H. Nishimori, *Phys. Rev. E* 77, 061110, 1-7 (2008).
116. “Multicritical Points for the Spin Glass Models on Hierarchical Lattices”
M. Ohzeki, H. Nishimori, and A.N. Berker, *Phys. Rev. E* 77, 061116, 1-11 (2008).
117. “Finite-Temperature Phase Diagram of Nonmagnetic Impurities in High-Temperature Superconductors using a $d=3$ tJ Model with Quenched Disorder”
M. Hinczewski and A.N. Berker, *Phys. Rev. B* 78, 064507, 1-5 (2008).
118. “The Blume-Emery-Griffiths Spin Glass and Inverted Tricritical Points”
V.O. Özçelik and A.N. Berker, *Phys. Rev. E* 78, 031104, 1-5 (2008).
119. “Chaotic Spin Correlations in Frustrated Ising Hierarchical Lattices”
N. Aral and A.N. Berker, *Phys. Rev. B* 79, 014434, 1-4 (2009).
120. “Strong Violation of Critical Phenomena Universality: Wang-Landau Study of the Two-Dimensional Blume-Capel Model under Bond Randomness”
A. Malakis, A.N. Berker, I.A. Hadjiagapiou, and N.G. Fytas, *Phys. Rev. E* 79, 011125, 1-10 (2009).
121. “Quenched-Vacancy Induced Spin-Glass Order”
G. Gülpınar and A.N. Berker, *Phys. Rev. E* 79, 021110, 1-4 (2009).

Preprint:

122. “Superfluid Weight, Free Carrier Density, and Specific Heat of the $d=3$ tJ Model at Finite Temperatures”
M. Hinczewski and A.N. Berker, [arXiv:cond-mat/0503631v1](https://arxiv.org/abs/cond-mat/0503631v1) [cond-mat.str-el] (2005).
123. “Frustrated Further-Neighbor Antiferromagnetic and Electron-Hopping Interactions in the $d=3$ tJ Model: Finite-Temperature Global Phase Diagrams from Renormalization-Group Theory”
C.N. Kaplan, A.N. Berker, and M. Hinczewski, [arXiv:0809.5181v1](https://arxiv.org/abs/0809.5181v1) [cond-mat.supr-con] (2008).
124. “Infinitely Robust Order and Local Order-Parameter Tulips in Apollonian Networks with Quenched Disorder”
C.N. Kaplan, M. Hinczewski, and A.N. Berker, [arXiv:0811.3437v1](https://arxiv.org/abs/0811.3437v1) [cond-mat.dis-nn] (2008).

Almış olduđu Scientific Citation Index atıf sayısı: 4051 (Şubat 2009 tarihine kadar)

Yukarıdakilerden ayrıca, A.N. Berker’in M.I.T.’deki araştırma grubundaki lisans ve lisansüstü öğrencileri 35 makale çıkarmışlardır. Liste verilebilir.

A. Nihat Berker

Kongre ve Konferanslarda Verdiği Davetli Konuşmalar

"Phase Transitions in Gases Adsorbed onto Graphite and the Position-Space Renormalization-Group Method"
15th Annual Meeting of the Society of Engineering Science, Gainesville, Florida (1978)

"Phase Transitions in Graphite-Adsorbed Systems: Theory and Experiment"
Greater Boston Statistical Mechanics Meeting (1978)

"Epitaxial Ordering and Multicritical Phenomena in Adsorbed Monolayers: Renormalization Theory"
March Meeting of the American Physical Society, Chicago (1979)
Abstract: Bull. Am. Phys. Soc. 24, 324-325 (1979).

"Phase Transitions in Adsorbed Systems and Potts Models"
USA-USSR Condensed Matter Theory Workshop, Sevan, USSR (1979)

"Commensurate Order, Multicritical Points, and Finite Sizes of Adsorbed Systems"
International Conference on Ordering in Two Dimensions, Lake Geneva, Wisconsin (1980)

"Adsorption and Potts Models"
Nordita-Landau Institute Condensed Matter Theory Workshop, Copenhagen, Denmark (1980)

"A Frustrated Spin-Gas Model for Doubly Reentrant Liquid Crystals"
Nordita-Landau Institute Condensed Matter Theory Workshop, Göteborg, Sweden (1981)

"Restructuring and Rescaling: Adlayer Transitions in Terms of Potts Lattice Gases, Helical Potts Models, etc."
International Conference on Phase Transitions on Surfaces, Orono, Maine (1981)

"Ordering in Adsorbed Systems and in Liquid Crystals: Competing Mechanisms"
DOE Workshop on Future Trends in Condensed Matter Theory and the Role of Computation, Nantucket (1981)

"Global Phase Diagrams with Order-Disorder and Structural Transitions: Renormalization-Group Approach"
Annual Meeting of the Materials Research Society, Boston (1982)

"Commensurate-Incommensurate Phase Diagrams from the Helical Potts Model"
March Meeting of the American Physical Society, Dallas (1982)
Abstract: Bull. Am. Phys. Soc. 27, 140 (1982).

"First- and Second-Order Phase Transitions in Potts Models: Competing Mechanisms"
3rd Joint Intermag-Magnetism and Magnetic Materials Conference, Montréal (1982)

"Commensurate-Incommensurate Phase Diagrams from the Helical Potts Model"
2nd International Symposium on the Statistical Mechanics of Adsorption, Trieste, Italy (1982)

"Frustrated Spin-Gas Model for Doubly Reentrant Liquid Crystals"
International Meeting on New Type of Ordered Phase, Kyoto, Japan (1982)
Abstract: J. Phys. Soc. Jpn. 52 Suppl., 45 (1982).

"Hierarchical Models and Chaotic Spin Glasses"
Conference on Fractals in the Physical Sciences, National Bureau of Standards, Gaithersburg, Maryland (1983)

"Spin-Glasses from Chaotic Renormalization Groups"
3rd General Conference of the Condensed Matter Division, European Physical Society, Lausanne, Switzerland (1983)
Abstract: Europhys. Conf. Abs. 7b, 93 (1983).

"Frustration and Chaos in Spin-Glasses"
Nordita-Landau Institute Condensed Matter Theory Workshop, Copenhagen, Denmark (1984)

"Reentrant Melting of Krypton Adsorbed on Graphite and the Helical Potts-Lattice-Gas Model"
March Meeting of the American Physical Society, Las Vegas (1986)
Abstract: Bull. Am. Phys. Soc. 31, 570-571 (1986).

"Annealed Frustration and Partial Bilayers in Dipolar Liquid Crystals"
NATO Workshop on Incommensurate and Liquid Crystals, Boulder, Colorado (1986)

"Random-Field Magnets and Spin-Glasses"
60th Statistical Mechanics Meeting, Rutgers University (1988)

"Bicritical Phase Diagram of Polar Liquid Crystals"

Theoretical Physics Institute Workshop on the Nature of Phase Transitions in Liquid Crystals and Related Topics, Minneapolis, Minnesota (1988)

"Renormalization-Group Theory of Phase Transitions on Surfaces and in Spin-Glasses"

10th Annual Meeting of the Turkish Physical Society, İstanbul (1988)

"The Renormalization-Group Method and Phase Transitions in Condensed-Matter Systems"

Annual Meeting of the the Scientific and Technical Research Council of Turkey, Ankara (1988)

"Magnetic System Critical Behavior Generated by Microscopic Impurities"

NATO Advanced Study Institute on the Science and Technology of Nanostructured Magnetic Materials, Crete, Greece (1990)

"Quenched Fluctuation Induced Second-Order Phase Transitions"

March Meeting of the American Physical Society, Cincinnati (1991)

Abstract: Bull. Am. Phys. Soc. 36, 439 (1991).

"Absence of Temperature-Driven First-Order Phase Transitions in Systems with Random Bonds"

5th Joint Magnetism and Magnetic Materials-Intermag Conference, Pittsburgh (1991)

"Statistical Mechanics of Phase Transitions with a Hierarchy of Structures"

Annual Meeting of the Materials Research Society, Boston (1991)

"Microscopic Theory of Polar Liquid Crystals and Multiply Reentrant Phase Diagrams: I. Dipolar Interactions, Corrugation, and Permeation; II. Blockwise Interactions, Core Aspect Ratio, and Smectic C Ordering"

Erice School on Phase Transitions in Liquid Crystals, Italy (1991)

"Critical Behavior Induced by Quenched Disorder"

18th International Conference on Thermodynamics and Statistical Mechanics, Berlin, Germany (1992)

"Complex Phase Transition Phenomena Due to Frustration and Quenched Randomness: I. New Critical and Multicritical Phenomena Induced by Quenched Random Bonds; II. Hard-Spin Mean-Field Theory

III. Reentrances and Other Phenomena in Polar Liquid Crystals: A Microscopic Theory with Frustration"

Summer School on Recent Developments in Statistical Physics, İstanbul (1993)

"Hard-Spin Mean-Field Theory"

Topics in Statistical Physics Meeting, Antigonish, Nova Scotia, Canada (1993)

"Hard-Spin Mean-Field Theory"

70th Statistical Mechanics Meeting, Rutgers University (1993)

"Finite-Temperature Phase Diagram of the Three-Dimensional tJ Model of Electronic Conduction"

Istanbul Technical University Statistical Physics Days (1994)

"Quenched Randomness and Helium Mixtures in Porous Media"

Institute for Theoretical Physics Workshop on Vortex Phases, Santa Barbara (1994)

"Strong Violation of Universality under Quenched Randomness and Helium Mixtures in Aerogel"

Symposium on Quantum Fluids and Solids, Cornell (1995)

"Strong Violation of Universality under Quenched Randomness and Helium Mixtures in Aerogel"

International Meeting on Recent Advances in the Theory of Disordered Systems, Saclay, France (1995)

"Strong Violation of Universality"

Istanbul Technical University Statistical Physics Days (1996)

"Quenched Randomness: Strong Violation of Universality and Helium Mixtures in Aerogel"

March Meeting of the American Physical Society, Saint Louis, Missouri (1996)

Title: Bull. Am. Phys. Soc. 41, 218 (1996).

"Renormalization-Group Theory of an Electron Conduction Model with Explicit Quantum Mechanical Dynamics"

Workshop on Interface Dynamics and Non-Equilibrium Phase Transitions, TÜBİTAK Feza Gürsey Research Institute for Basic Sciences, İstanbul (1998)

- “Finite-Temperature Phase Diagram of the Hubbard Model of Electronic Conduction”
80th Statistical Mechanics Meeting, Rutgers University (1998)
- “Phase Diagrams of Electronic Conduction Models from Renormalization-Group Theory”
IX. Regional Conference on Mathematical Physics, İstanbul (1999)
- “Renormalization-Group Theory in the Statistical Mechanics of Fluids”
3. National Liquid-State Physics Symposium, İstanbul (1999)
- “Renormalization-Group Solution of Electronic-System Phase Diagrams”
18th Annual Meeting of the Turkish Physical Society, Adana (1999)
- "Complete Phase Diagram of the 3-d Hubbard Model"
March Meeting of the American Physical Society, Minneapolis, Minnesota (2000)
Abstract: Bull. Am. Phys. Soc. 45, 757 (2000).
- "Finite-Temperature Phase Diagram of the tJ and Hubbard Models in $d=3$ from Renormalization-Group Theory"
21st IUPAP International Conference on Statistical Physics, Cancun, Mexico (2001)
- “From tJ to Hubbard: an Excursion in Phase Diagram Space”
88th Statistical Mechanics Meeting, Rutgers University (2002)
- “Trajectories and Phases for Friends and Electrons”
M. Hortaçsu Onuruna Konferans, İstanbul Teknik Üniversitesi (2003)
- “Phase Diagrams, Superfluid Weights, and Thermodynamic and Conduction Properties of Isotropic and Anisotropic Electronic Conduction Models at Finite Temperatures: Renormalization-Group Theory”
22nd Annual Meeting of the Turkish Physical Society, Bodrum (2004)
- “BCS and BEC Superconducting Phases, Superfluid Weights, and Carrier Densities of Electronic Conduction Models: Renormalization-Group Theory”
İstanbul Technical University Statistical Physics Days (2005)
- “BCS and BEC Superconducting Phases, Superfluid Weights, and Carrier Densities of Electronic Conduction Models: Renormalization-Group Theory”
Erzurum Fizik Günleri, Erzurum (2005)
- “BCS and BEC Superconducting Phases, Superfluid Weights, and Carrier Densities of Electronic Conduction Models: Renormalization-Group Theory”
III. National Superconductivity Symposium, Abant (2005)
- “New Phases, Superfluid Weights, and Free Carrier Densities: Renormalization-Group Theory of Electronic Models”
94th Statistical Mechanics Meeting, Rutgers University (2005)
- “Superconducting Phases, Superfluid Weights, and Carrier Densities in Electronic Lattice Models”
M. Tomak Onuruna Konferans, Orta Doğu Teknik Üniversitesi, Ankara (2005)
- “Kişiler, Ölçekler ve Elektronlar”
Erdal İnönü Günleri, Boğaziçi Üniversitesi, İstanbul (2006)
- “Strong Friendships and Strongly Correlated Electrons”
İ.H. Duru Onuruna Konferans, İzmir Yüksek Teknoloji Enstitüsü (2006)
- “New Phases, Superfluid Weights, Free Carrier Densities, Impurity Effects: Renormalization-Group Theory of the tJ and Hubbard Models”
2nd Bilateral Workshop on Solid State and Materials Chemistry, Dresden, Germany (2006)
- “Ab Initio Enthusiasm and High Principles Physics”
Conference in Honor of J.D. Joannopoulos, Massachusetts Institute of Technology (2007)
- “Spin Camlarında Bunalım ve Kaos”
Düzensiz Sistemler: Teori ve Uygulamalar Çalıştayı, İzmir (2007)
- "Kuantum Sürprizleri: Bileşenlerarası Spin Korelasyonları, Spin Camı Ferromanyetizması ve Süperiletken/Antiferromanyet Safsızlık Ters Etkileri"
14. Yoğun Madde Fiziği Ankara Toplantısı, Hacettepe Üniversitesi, Ankara (2007)

“Quantum Surprises: Cross-Component Correlations, Spin-Glass Ferromagnetism, and Reverse Impurity Effects on Superconductor and Antiferromagnetic Phases”
3rd Bilateral Workshop on Novel Materials, İstanbul (2008)

“Erdal İnönü’nün İzinde: Koşmalar ve Sıçramalar”
Erdal İnönü’yü Anma Günü, İstanbul (2008)

“Phase Diagrams of the $d=3$ Electronic Conduction Models with Frozen Impurities: Renormalization-Group Calculations”
Summer School in Mathematical Physics: Rigorous Result in Statistical Mechanics and Quantum Field Theory, İstanbul (2008)

"Phase Diagrams of the $d=3$ tJ Electronic Model with Frozen Nonmagnetic Impurities, with Application to High-Temperature Superconductivity: Renormalization-Group Theory”
International Conference on Superconductivity and Magnetism, Antalya (2008)

“Yüksek Sıcaklık Süperiletkenliği Teorisi ve Araştırma Odaklı Eğitim”
Türkiye Bilimler Akademisi Ankara Grubu Konferansları, Ankara (2008)

“Thermal/Geometrical Crossovers, Inverted KBT Transitions, and Local Order-Parameter Tulips: Renormalization-Group Studies of Networks with Quenched Disorder”
Workshop on Complex Systems, Seoul National University, Kore (2008)

Yukarıdaki 65 davetli konferans konuşmasına ilaveten, konferanslarda sunduğu bildiri sayısı: 142
Ayrıca, kendi üniversitesinin dışında 1978-09 yıllarında 256 davetli seminer vermiştir. Bunlardan en son olarak:

“Yüksek Sıcaklık Süperiletkenli Faz Diyagramları, Süperakışkanlık Yoğunluğu ve Ağır Fermiyonlar: Mikroskopik Renormalizasyon Grubu Kuramı”

[197] Balıkesir Üniversitesi, 22 Ekim 2004

[198] TÜBİTAK Feza Gürsey Enstitüsü, 11 Kasım 2004

[199] Boğaziçi Üniversitesi, 24 Kasım 2004

[200] Sabancı Üniversitesi, 7 Aralık 2004

[202] Erciyeş Üniversitesi, 17 Aralık 2004

“Bir Üniversite Nasıl Olmalıdır?”

[203] Türkiye Odalar ve Borsalar Birliği Ekonomi ve Teknoloji Üniversitesi, 24 Şubat 2005

“Italo Calvino, J.-P. Sartre, Oryantalizm, G. Vizenos: Mühendishanede bir Fenci Toplumbilim Okutuyor”

[201] Sabancı Üniversitesi, 7 Aralık 2004

[206] Koç Üniversitesi, 26 Nisan 2005.

“Phase Diagrams with Two Superconducting Phases, Superfluid Weights and Free Carrier Densities: Renormalization-Group Theory of Electronic Conduction Models”

[204] Saclay Research Center, Paris, 5 Nisan 2005

[205] Koç Üniversitesi, 21 Nisan 2005

[208] ETH Zürich, 12 Mayıs 2005

[209] Munich Technical University, 13 Mayıs 2005

“İki Tür Süperiletkenli Faz Diyagramları, Serbest Taşıyıcı ve Süperakışkanlık Yoğunluğu: Mikroskopik Renormalizasyon Grubu Kuramı”

[207] Eskişehir Anadolu Üniversitesi, 6 Mayıs 2005

“New Phases, Superfluid Weights, and Free Carrier Densities: Renormalization-Group Theory of Electronic Conduction Models”

[210] École Normale Supérieure, Paris, 27 Ekim 2005

[211] University of California, Santa Barbara, 1 Kasım 2005

[212] Stanford University, 3 Kasım 2005

“New Phases, Superfluid Weights, Free Carrier Densities, Impurity Effects: Renormalization-Group Theory of the tJ and Hubbard Models”

[213] Ohio State University, 6 Mart 2006

[214] University of Michigan, 9 Mart 2006

[215] Boston University, 6 Nisan 2006

"Elektronik Modellerin Renormalizasyon Grubu Çözümü ve Yüksek Sıcaklık Süperiletkenliği"

[216] Karadeniz Teknik Üniversitesi, 14 Nisan 2006

“Renormalization-Group Theory of d=3 Electronic Systems Including Quenched Random Impurities: Phase Diagrams, Superconductivity, and Antiferromagnetism”

[217] Tokyo Institute of Technology, 17 Ekim 2006

[219] Tohoku University, 24 Ekim 2006

[220] Tokyo University, 25 Ekim 2006

[221] Tokyo Science University, 26 Ekim 2006

[223] Bilkent Üniversitesi, 11 Aralık 2006

[230] University of Athens, 21 Haziran 2007

“Exact Renormalization-Group Theory on Hierarchical Lattices with Applications to Quenched Random Systems”

[218] Tokyo Institute of Technology, 19 Ekim 2006

[222] Kyushu University, 27 Ekim 2006

[232] University of Athens, 27 Haziran 2007

“Faz Geçişleri, Renormalizasyon Grubu, Elektronik Sistemler ve Küçük Dünya Ağları”

[224] Erzurum Atatürk Üniversitesi, 10-12 Ocak 2007 (10 saatlik yoğun ders, 102 öğrenci tarafından tamamlanmıştır)

[226] Kayseri Erciyes Üniversitesi, 9-12 Mart 2007 (21 saatlik yoğun ders, 23 öğrenci tarafından tamamlanmıştır)

[233] TÜBİTAK F. Gürsey Enstitüsü, 8-19 Tem. 2007 (54 saatlik yoğun ders, 46 öğrenci tarafından tamamlanmıştır)

[247] TÜBİTAK F. Gürsey Enstitüsü, 13-24 Temmuz 2008 (54 saatlik yoğun ders, 66 öğrenci kabul edildi)

“Italo Calvino, J.-P. Sartre, Oryantalizm, G. Vizenos: Mühendishanede bir Fencinin Toplum Bilim Dersleri”

[227] Boğaziçi Üniversitesi, Batı Dilleri ve Fizik Bölümleri Ortak Semineri, 19 Nisan 2007

“Z’den Çıkanlar: Elektron Sistem Faz Diyagramları ve İstanbul Büyükşehir Lojistiği”

[228] İstanbul Üniversitesi Kortel Semineri, 11 Mayıs 2007

[229] Ulusal Metroloji Enstitüsü, 14 Mayıs 2007

“Phase Transitions and Renormalization-Group Theory”

[231] University of Athens, 25-27 Haziran 2007 (6 saatlik ders)

“Ord. Prof. Dr. Ratip Berker ve Prensipleri”

[234] İstanbul Teknik Üniversitesi Makina Fakültesi, 30 Kasım 2007

[236] Işık Üniversitesi, 20 Şubat 2008

[242] İstanbul Matematik Derneği Karaköy Seminerleri, 5 Mayıs 2008

“Kuantum Sürprizleri: Bileşenlerarası Spin Bağlantıları, Spin Camı Ferromanyetizması ve Süperiletken/Antiferromanyet Safsızlık Ters Etkileri”

[235] Işık Üniversitesi, 20 Şubat 2008

[243] Yıldız Teknik Üniversitesi, 22 Mayıs 2008

[246] Munich Technical University, 27 Haziran 2008

[249] University of Athens, 14 Kasım 2008

“Yüksek Eğitimde Fen, Mühendislik ve Sosyal Bilimler”

[225] İTÜ Ekrem Elginkan Lisesi, 22 Ocak 2007

[237] Üsküdar Amerikan Lisesi, 26 Mart 2008

[238] Robert Kolej Lisesi, 26 Mart 2008

[240] Galatasaray Lisesi, 18 Nisan 2008

[241] Getronagan Lisesi, 30 Nisan 2008

[245] TEV İnanç Türkeş Lisesi, 16 Haziran 2008

[250] Zoğrafyon Lisesi, 26 Kasım 2008

“Yüksek Sıcaklık Süperiletkenlik Teorisi ve Araştırma Odaklı Eğitim”

[239] İstanbul Teknik Üniversitesi, 16 Nisan 2008

[244] Yıldız Teknik Üniversitesi, 22 Mayıs 2008

[257] Fizik Mühendisliği Odası, Kadıköy, 13 Mart 2009

“Arttırılmış Mekanik”, lise öğrencileri için bir ders

[248] TÜBİTAK F. Gürsey Enstitüsü, 17-28 Ağustos 2008 (54 saatlik yoğun ders, 25 liseden 100 öğrenci kayıtlı)

“Renormalization-Group Theory of d=3 Electronic Systems with Spatial Anisotropy and Quenched Random Impurities”

[251] Seoul National University, 23 Aralık 2008

“Quantum Asymmetry, Inverted Tricritical Points, and Quenched-Vacancy-Induced Random Order in Spin Glasses”

[252] Korea Institute for Advanced Study, 26 Aralık 2008

[253] München Technical University, 21 Ocak 2009

[254] University of Mainz, 2 Şubat 2009

[255] University of Oldenburg, 5 Şubat 2009

“Thermal/Geometrical Crossovers, Inverted KBT Transitions, and Local Order-Parameter Tulips”

[256] München Technical University, 9 Şubat 2009

“Yüksek Sıcaklık Süperiletkenliği, Araştırma Odaklı Eğitim, Nano Su”

[258] Robert Kolej Lisesi, 26 Mart 2009

[259] Koç Üniversitesi, 22 Nisan 2009

“Inverted Tricriticality and Apollonian Tulips: New Results on Quenched Randomness”

[260] Saclay Research Center, Paris, 27 Nisan 2009

Beraberindeki Çalışmacıların A.N. Berker ile Ortak Çalışmalar Üzerine Davetli Konferans Konuşmalarından Bazıları □

"The Frustrated Spin-Gas Model for Doubly Reentrant Liquid Crystals"

J.S. Walker, Gordon Conference on Liquid Crystals, New Hampshire (1983)

"Chaotic Spin Glasses: An Upper Critical Dimension"

S.R. McKay, 29th Annual Conference on Magnetism and Magnetic Materials, Pittsburgh, Pennsylvania (1983)

"Reentrant Liquid Crystal Phases in Systems of Polar Molecules"

J.O. Indekeu, Liquid Crystal Days Conference, Leuven, Belgium (1984)

"Molecular Tail Lengths, Dipole Pairings, and Multiple Reentrance Mechanisms of Liquid Crystals"

J.O. Indekeu, 16th International Conference on Thermodynamics and Statistical Mechanics, Boston (1986)

"Equimagnetization Lines in the Hybrid-Order Phase Diagram of the $d=3$ Random-Field Ising Model"

S.R. McKay, 4th Joint Intermag-Magnetism and Magnetic Materials Conference, Vancouver, Canada (1988)

"Hybrid-Order Phase Transition and Intermediate-Critical Dimension of the Random-Field Ising Model"

S.R. McKay, New Trends in Magnetism Meeting, Recife, Brazil (1989)

"Phase Transitions on Semiconductor Surfaces"

O.L. Alerhand, 20th International Conference on the Physics of Semiconductors, Thessaloniki, Greece (1990)

"Finite-Temperature Phase Diagram of Vicinal Si(100) Surfaces"

O.L. Alerhand, Winter Epitaxy Workshop, Obertraun, Austria (1990)

"Finite-Temperature Equilibrium Properties of Steps on Si(100) Surfaces"

O.L. Alerhand, March Meeting of the American Physical Society, Cincinnati (1991)

Abstract: Bull. Am. Phys. Soc. 36, 587 (1991).

"Renormalization-Group Calculation of Local Magnetizations and Correlations: Random-Bond, Random-Field, and Spin-Glass Systems"

D. Yeşiltepe, Istanbul Technical University Statistical Physics Days (1997)

"Renormalization-Group Study of Helium Mixtures Immersed in a Porous Medium"

A. Lopatnikova, March Meeting of the American Physical Society, Los Angeles (1998)

Abstract: Bull. Am. Phys. Soc. 43, 515 (1998).

"Renormalization-Group Calculation of Local Magnetizations and Correlations: Random-Bond, Random-Field, and Spin-Glass Systems"

D. Yeşiltepe, March Meeting of the American Physical Society, Los Angeles (1998)

Abstract: Bull. Am. Phys. Soc. 43, 835 (1998).

"Hard-Spin Mean-Field Theory: A Self-Consistent Theory for Fluctuation-Dominated Systems"

A. Kabakçioğlu, Istanbul Technical University Statistical Physics Days (1999)

"Sequential Phase Transitions in Liquid Crystals: A Photon Transmission Study"

H. Özbek, Istanbul Technical University Statistical Physics Days (2000)

"Renormalization-Group Theory of Electronic Conduction Models"

M. Hinczewski, Istanbul Technical University Statistical Physics Days (2003)

"Critical Behavior of Liquid Crystals via the Optical Transmission Method"

S. Yıldız, Istanbul Technical University Statistical Physics Days (2003)

"Phase Diagrams and Crossover in Spatially Anisotropic $d=3$ Ising, XY Magnetic and Percolation Systems: Exact Renormalization-Group Solutions of Hierarchical Models"

A. Erbaş, 2nd Bilateral Workshop on Solid State and Materials Chemistry, Dresden, Germany (2006)

"Renormalization-Group Theory of $d=3$ tJ Models with Frustrated

Next-Nearest-Neighbor Antiferromagnetic and Electron-Hopping Interactions"

C.N. Kaplan, 2nd Bilateral Workshop on Solid State and Materials Chemistry, Dresden, Germany (2006)

"Renormalization-Group Theory of Electronic Models: Finite-Temperature Phase Diagrams and the Effects of Spatial Anisotropy and Quenched Disorder"

M. Hinczewski, 6th International Conference of the Balkan Physical Union, İstanbul (2006)

"Unusual Phase Transitions in Complex Networks"

M. Hinczewski, 11. National Liquid-State Physics Symposium, İstanbul (2007)

"Connection between Geometry and Thermal Correlations:

Small-World and Community Effects in Scale-Free Hierarchical Networks"

M. Hinczewski, 3rd Bilateral Workshop on Novel Materials, İstanbul (2008)

A.N. Berker Yönetimi Altında Doktoralarını Tamamlayan Öğrenciler

a) Harvard Üniversitesinde

S. Ostlund, Ph.D. 1980, "Statistical Mechanics of Two-Dimensional Systems"

Bu tezin ilk yarısı A.N. Berker tarafından yönetildi.

Doktoradan hemen sonra: Research Associate, Cornell University

Şimdi: Professor of Physics (tenured), Chalmers University

b) Massachusetts Institute of Technology'de

M. Kardar, Ph.D. 1983, "Ordering Phenomena under Competing Interactions in Adsorbed Layers and in Spin Systems"

Doktoradan hemen sonra: Junior Fellow, Harvard University Society of Fellows

Şimdi: Professor of Physics (tenured), Massachusetts Institute of Technology

D. Andelman, Ph.D. 1984, "Multicritical Phenomena in Systems with Quenched and Annealed Impurities"

Doktoradan hemen sonra: Research Associate, Collège de France, Paris

Şimdi: Professor of Physics (tenured), Tel Aviv University

R.G. Caflisch, Ph.D. 1984, "Phase Transitions in Adsorbed Layers, Binary Fluids, Liquid Crystals, and Cubic Crystals"

Doktoradan hemen sonra: Research Associate, Schlumberger-Doll Research, Connecticut

Şimdi: Analyst, Clear Systems, Inc., Texas

S.R. McKay, Ph.D. 1986, "Chaotic Spin-Glass Phases and Random-Field Ferromagnets"

Doktoradan hemen sonra: Assistant Professor of Physics, University of Maine

Şimdi: Professor of Physics (tenured), University of Maine

K. Hui, Ph.D. 1989, "Quenched Disorder and Competing Interactions in Spin Systems"

Doktoradan hemen sonra: Research Associate, University of California, Berkeley

Şimdi: Analyst, Barra Financial Consulting Firm, Berkeley

J.F. Marko, Ph.D. 1989, "On Structure and Scaling at First- and Second-Order Phase Transitions"

Doktoradan hemen sonra: Research Associate, University of Chicago

Şimdi: Professor of Physics (tenured), Northwestern University, Evanston

D.P. Aalberts, Ph.D. 1994, "Phase Transition Phenomena in Quantum Spin Systems and in Polyampholyte Gels"

Doktoradan hemen sonra: Research Associate, University of Leiden

Şimdi: Associate Professor of Physics (tenured), Williams College

A. Falicov, Ph.D. 1994, "Phase Transition Phenomena in Electronic Systems and in Systems with Quenched Field and Bond Randomness"

Doktoradan hemen sonra: Research Associate, University of California, San Francisco

Şimdi: M.D.Ph.D. Surgeon, Seattle Orthopaedic and Fracture Clinic, Washington

A. Kabakçoğlu, Ph.D. 1999, "Scaling Studies of Frustrated Systems, Random-Field Tricriticality, Electronic Conduction Models, and Interface Delocalization"

Doktoradan hemen sonra: Research Fellow, Weizmann Institute of Science

Şimdi: Y. Doçent, Koç Üniversitesi

G. Migliorini, Ph.D. 1999, "Renormalization-Group Studies of Disordered Magnetic Systems, Strongly Correlated Electronic Systems, and Polymeric Systems"

Doktoradan hemen sonra: Research Associate, Max Planck Institute, Mainz

Şimdi: Resarch Associate, Aston University, Birmingham

M. Hinczewski, Ph.D. 2005, "Renormalization-Group Theory of Correlated Electron Systems"

Doktoradan hemen sonra: Postdoctoral Researcher, TÜBİTAK F. Gürsey Temel Bilimler Araştırma Enstitüsü

Şimdi: Postdoctoral Researcher, Münih Teknik Üniversitesi

c) İstanbul Teknik Üniversitesinde

H. Kaya, Ph.D. 1999, "Scaling Behavior in Stochastic Growth Models Exhibiting Dynamical Phase Transitions and Degenerate Spin-Glass Order in Diluted Frustrated Systems"

(Degenerate Spin-Glass Order in Diluted Frustrated Systems kısmı A.N. Berker tarafından yönetildi)

Doktoradan hemen sonra: Postdoctoral Researcher, University of Toronto

Şimdi: Y. Doçent, Atatürk Üniversitesi, Erzurum

A.N. Berker Yönetimi Altında Doktoralarını Tamamlayan Öğrenciler, devam

d) Koç Üniversitesinde

C. Güven, Doktora çalışmaları devam ediyor.

V.O. Özçelik, Doktora çalışmaları devam ediyor.

O.S. Sariyer, Doktora çalışmaları devam ediyor.

A.N. Berker Yönetimi Altında Yüksek Lisans Tezlerini Tamamlayan Öğrenciler

a) Massachusetts Institute of Technology'de

W. Hoston, M.S. 1991, "Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling: Mean-Field and Renormalization-Group Studies"

R.R. Netz, M.S. 1991, "Frustration in Magnetic, Liquid Crystal, and Surface Systems: Monte Carlo Mean-Field Theory"

b) İstanbul Teknik Üniversitesinde

H. Kaya, M.S. 1994, "Phase Transitions in Systems with Quenched Randomness: The Hard-Spin Mean-Field Theory Approach" (tezde bir Bölüm)

O.S. Sariyer, M.S. 2007, "Quantum Phenomena in Anisotropic XXZ Heisenberg Spin Chains with Ferromagnetic and Antiferromagnetic Interactions: Renormalization Group Calculations"

A. Tuncer, M.S. 2007, "Spin Camlarında Alt Kritik Boyut ve Donmuş Olasılık Dağılımının Ölçeklenmesi: Ara Boyutlarda Renormalizasyon Grubu Çözümü"

B. Yücesoy, M.S. 2007, "Non-Equilibrium Behavior of a Complex Ordering System: Hysteresis in the d=3 Ising Spin-Glass from Hard-Spin Mean-Field Theory"

V.O. Özçelik, M.S. 2008, "Global Phase Diagrams of BEG Spin-Glass and Spinless Fermion Systems"

c) Koç Üniversitesinde

A. Erbaş, M.S. 2007, "Two Statistical Physics Problems: Phase Diagram Calculation of Spatially Anisotropic, Surfaced d=3 Layered Systems by Renormalization-Group Theory and Vehicle and Route Optimization with Traffic Factors for Migros Home Delivery System by Simulated Annealing"

B. Renklioğlu, M.S. 2007, "Stepwise Positional and Orientational Ordering in the Spin-3/2 Ising Model: A Plastic Crystal Phase Diagram from Renormalization-Group Theory"

C. Güven, M.S. 2008, "Reentrant and Forward Phase Diagrams of the Anisotropic d=3 Ising Spin Glass"

C.N. Kaplan, M.S. 2008, "Renormalization-Group Theory of Classical and Quantum Systems with Frozen Disorder"

A.N. Berker Yönetimi Altında Lisans Tezlerini Tamamlayan Öğrenciler

a) Massachusetts Institute of Technology'de

H. Chou, B.S. 1981, "Binary Fluid Mixtures with Three Critical Points due to Orientational Correlations"

D.A. Seibert, B.S. 1981, "Asymmetric Closed-Loop Phase Diagrams in Binary Fluid Mixtures: A Renormalization-Group Approach"

J.E. Simko, B.S. 1982, "Searching for Fisher Renormalization Effects: The Triangular Ising Lattice"

R.E. Goldstein, B.S. 1983, "Molecular Theory of Reentrant Phase Transitions in Binary Liquid Mixtures" *

Bu araştırma MIT Fizik Bölümünün Orloff Araştırma Ödülünü kazandı (1983).

Bu araştırma Amerikan Fizik Kurumunun Apker Ödülünü kazandı (1983).

R.J. Lenk, B.S. 1983, "Phase Diagrams and Critical Behavior of a Generalized Helical Potts Model on the Triangular Lattice"

S.I. Chase, B.S. 1985, "Renormalization-Group Analysis of the q-State Potts Model" *

W.V. Wang, B.S. 1985, "Surface Free Energy of the Two-Dimensional Ising Models and Universality of Finite-Size Scaling Amplitudes by the Method of Pfaffian and Dimer Statistics" *

J.E. Hilliard, B.S. 1989, "Monte Carlo Simulation of a One-Dimensional Ising System with Competing Interactions Using Domain Walls"

G.T. Pickett, B.S. 1989, "Asymptotic Behavior of the Spectrum of Generalized Dimensions in Multifractal Tree Growth"

A.A. Naqvi, B.S. 1994, "Frustrated Systems and Hard-Spin Mean-Field Theory"

A. Lopatnikova, B.S. 1997, "Renormalization-Group Theory of Superfluidity and Phase Separation of Helium Mixtures Immersed in Aerogel" *

Bu araştırma MIT Fizik Bölümünün Orloff Araştırma Ödülünü kazandı (1997).

Bu araştırma Amerikan Fizik Kurumunun Apker Ödülünü kazandı (1997).

D. Yeşiltepe, B.S. 1997, "Renormalization-Group Calculation of Local Magnetizations and Correlations: Random-Bond, Random-Field, and Spin-Glass Systems" (tezde bir Bölüm) *

b) İstanbul Teknik Üniversitesinde

A. Erbaş, B.S. 2004, "Heat Capacities of Anisotropic Ising Models" *

O.S. Sariyer, B.S. 2004, "Renormalization-Group Theory of the Excitation Spectrum Gap and Spin-Wave Stiffness in Isotropic and Anisotropic Quantum Heisenberg Magnets"

A. Tuncer, B.S. 2004, "Renormalization-Group Theory of Spatially 2+1 Anisotropic d=3 Percolation Systems" *

B. Yücesoy, B.S. 2004, "Renormalization-Group Theory of Spatially Uniaxially Anisotropic d=3 Ising Spin, XY Spin, and Electronic Systems" *

S.R. Baronyan, B.S. 2005, "Çelişkili Etkileşimli ve Termal Boşluklu Hiyerarşik Spin Modelinin Renormalizasyon Grubu Akışları"

B. Renklioğlu, B.S. 2005, "Küçük Dünya Ağlarında Faz Geçişi ve Kritik Üstel"

N. Aral, B.S. 2006, "Spin Correlation Functions of Frustrated Systems Exhibiting Chaotic Rescaling"

A. Doldurucu, B.S. 2006, "A Microscopic Model of Electrophoresis"

C. Güven, B.S. 2006, "A Novel Spin Glass: The d=3 Transverse Spin Glass and its Renormalization-Group Transformation"

C.N. Kaplan, B.S. 2006, "İkinci Komşu Manyetik ve Elektron Etkileşmeli d=3 tJ Modelinin Renormalizasyon Grubu Çözümü"

V.O. Özçelik, B.S. 2006, "Termal ve Donmuş Düzensizlikleri Olan bir Spin Sisteminde Renormalizasyon Grubu Dönüşümü"

c) Koç Üniversitesinde

Ş. Namırtı, "Simulated Annealing, Quantum Hamiltonian Evolution, and other Statistical Physics Methods Applied to Flexible Route Optimization for Migros e-Market" (lisans öğrencisi araştırma projesi)

H. Ayaz, "Alloy Interface Roughening by Hard-Spin Mean-Field Theory" (devam ediyor)

D. Önal, "Dimer-Trimer Network Characteristics of Self-Healing Polymers" (devam ediyor)

T. Çağlar, "Glassy Behavior in Alloys: Hard-Spin Mean-Field Theory" (devam ediyor)

* Bu lisans tezi araştırmalarından hakemli dergide makaleler çıkmıştır.

A.N. Berker Tarafından Verilen Dersler**M.I.T.'de 20 yıl süresinde,**

31 smestir 9 ayrı ders, 5 smestir uygulama, 7 kez bir aylık 3 ayrı yoğun programlı ders:

| | | |
|-------|--|----------------------------|
| 8.04 | Undergraduate Quantum Physics I | (Lectures and Recitations) |
| 8.05 | Undergraduate Quantum Physics II | (Lectures and Recitations) |
| 8.07 | Undergraduate Electromagnetism II | (Lectures) |
| 8.231 | Undergraduate Physics of Solids I | (Lectures and Recitations) |
| 8.232 | Undergraduate Physics of Solids II | (Lectures) |
| 8.235 | Superconductivity | (Lectures) |
| 8.236 | Phase Transitions and Renormalization-Group Theory | (Lectures) |
| 8.237 | Neural Networks and Simulated Annealing | (Lectures) |
| 8.581 | Entropy, Information and the Brain | (Co-lecturer) |
| 8.321 | Graduate Quantum Theory I | (Lectures) |
| 8.322 | Graduate Quantum Theory II | (Lectures) |
| 8.333 | Graduate Statistical Mechanics I | (Lectures and Recitations) |
| 8.334 | Graduate Statistical Mechanics II | (Lectures and Recitations) |
| 8.392 | Graduate Statistical Mechanics III | (Lectures) |

Lisansst İstatistik Mekanik 8.333, 8.334 ve 8.392 derslerini verişinden (1986-7) M.I.T. Fizik Blmnn Buechner Eđitim dln kazanmıřtır.

M.I.T. Fen Fakltesinin Lisansst Eđitimde Mkemmellik iin Eđitim dln kazanmıřtır (1995).

İstanbul Teknik niversitesinde:

| | | |
|----------------|--|--------------------|
| FIZ111, FIZ101 | Fizik I: Mekanik | (Ders ve Uygulama) |
| FIZ132, FIZ102 | Fizik II: Elektrik ve Manyetizma | (Ders ve Uygulama) |
| KIM101E | General Chemistry I | (Ders) |
| FN607, FIZ621 | Evrensellik, leklenme ve Dalgalanmalar | (Ders) |
| FN608 | Lisansst İstatistik Mekanik | (Ders) |
| ITB016E | Science and Engineering from the Humanist: Italo Calvino | (Ders) |
| ITB027E | Estrangement/Involvement in 5 Works by Camus and Sartre | (Ders) |
| ITB143E | Durrell and Said: Orientalism Practiced and Theorized | (Ders) |
| ITB179E | Literatures of Intimate Separacies: Vizyenos, Seyfettin, Armen | (Ders) |
| ITB179 | İie Ayrılıkların Edebiyatları: Vizyenos, Seyfettin, Armen | (Ders) |

**TBİTAK Feza Grsey Temel Bilimler Arařtırma Enstitsnde,
Erzurum Atatrk niversitesinde, Kayseri Erciyeř niversitesinde:**

| | |
|--|--------|
| Faz Geişleri ve Renormalizasyon Grubu Teorisi | (Ders) |
| Arttırılmıř Mekanik, lise đrencilerine ynelik bir ders | (Ders) |

Ko niversitesinde:

| | | |
|-------------|--|--------|
| PHYS101 | Physics I: Mechanics | (Ders) |
| PHYS102 | Physics I: Electricity and Magnetism | (Ders) |
| PHYS301 | Undergraduate Statistical Physics | (Ders) |
| PHYS409/509 | Phase Transitions and Renormalization-Group Theory | (Ders) |
| PHYS506 | Graduate Quantum Statistical Mechanics | (Ders) |

Sabancı niversitesinde:

| | | |
|-------|---|--------|
| NS210 | Su: Fizik, Nanofizik, Kimya ve Jeopolitik | (Ders) |
|-------|---|--------|

A.N. Berker'in Projelenme ve İdari Çalışmalarından Bazıları □

- National Science Foundation, Army Research Office, Joint Services Electronics Program, Department of Energy, U.S.A.; Intevap Petroleum Company, Alfred P. Sloan Foundation'dan Araştırma Projeleri Yürütücüsü, 1979-2002, toplam miktar yaklaşık \$2 500 000 .
- TÜBİTAK Temel Bilimler Araştırma Grubu, Migros KÜMPEM'den Araştırma Projeleri Yürütücüsü, 2005-
- M.I.T. Lisans ve Lisansüstü Öğrenci Girişleri
- M.I.T. Fizik Bölümü Lisansüstü Genel Yeterlik Sınavı Kurulları □
- M.I.T. Yoğun Madde Fiziği Seminerleri yöneticisi (1980-89)
- M.I.T. Fizik Bölümü Yeni Başkan Seçimi için Öğretim Üyelerinden Arama Kurulu (1981)
- Ortak Başkan, USA Enerji Bakanlığı Çalışma Toplantısı (1981): "Yoğun Madde Fiziğinde Geleceğin Konuları ve Bilgisayar Kullanımı"
- M.I.T. Fizik Bölümü Denetleme Kurulu için Raportör (1982)
- M.I.T. Kuramsal Yoğun Madde Fiziği Merkezinin iki kurucu öğretim üyesinden biri (1982)
- M.I.T. Herman Feshbach Konferans Serilerinin Başkanı (1986-89)
- M.I.T.-Lincoln Laboratuvarları Öğretim Üyesi Bağlantı Kurulu (1987-88)
- M.I.T. Harris Konferans Serilerinin Başkanı (1992-97)
- Disiplinlerarası Araştırma Grubu Lideri, Malzeme Bilimi ve Mühendisliği Merkezi, M.I.T. (1993-94)
- M.I.T. Fizik Bölümünün Yeni Tanıtma Kitabı Kurulu Başkanı (1994-95)
- Kurucu ve Ortak Başkan, İstanbul Teknik Üniversitesi İstatistik Fizik Günleri. Proceedings Editörü (1994, 97-99)
- Danışma Kurulu Üyesi (1997-99), Yönetim Kurulu Üyesi (2000-), TÜBİTAK Feza Gürsey Temel Bilimler Araştırma Enstitüsü
- TÜBİTAK F. Gürsey Temel Bilimler Araştırma Enstitüsü Yeni Müdür Seçimi için Arama Kurulu Başkanı (1999)
- İ.T.Ü. Fizik Seminerleri yöneticisi (1999-2000)
- İstanbul Fizik Takvimi, Kurucu Editör (1999-2001)
- İ.T.Ü. Fizik Bölüm Başkanı (2000-3); Fizik Bölümü ders programını ve Fizik I,II servis derslerini (her dönem yaklaşık 2400 öğrenci) yeniden yapılandırmıştır.
- Konferans Kurulu, Türkiye Bilimler Akademisi (2000-01)
- Etik Komitesi, Türkiye Bilimler Akademisi (2001); "Bilimsel Araştırmada Etik ve Sorunları", C. Ertekin, N. Berker, A. Tolun ve D. Ülkü, 70 sayfa, Türkiye Bilimler Akademisi Yayınları (2002)
- Başeditör, ARI – Bulletin of the Istanbul Technical University (2002-04)
- International Union of Pure and Applied Physics, İstatistik Fizik Komisyonu (2002-08)
- İ.T.Ü. Fizik Mühendisliği Anabilim Dalı Başkanı (2002-05)
- İ.T.Ü. Fen-Edebiyat Fakültesi Dekanı (2003-04); Kimya I, Matematik I,II, Diferansiyel Denklemler, Lineer Cebir derslerini (her dönem yaklaşık 6000 öğrenci) yeniden yapılandırmıştır.
- Kurucu ve Yönetici, M.I.T.-Turkey Freshman Scholars Program (2003-)
- Türkiye Bilimler Akademisi Üstün Başarılı Genç Bilim İnsanlarını Ödüllendirme Programı (GEBİP), Astronomi-Fizik-Matematik Bilimleri Alan Değerlendirme Komitesi üyesi (2006-), yürütücüsü (2007-)
- TÜBİTAK Feza Gürsey Temel Bilimler Araştırma Enstitüsü, Yönetim Kurulu Başkanı (2007-)
- Türkiye Bilimler Akademisi Konseyi Üyesi (2008-)
- Fakülte Kurulu ve Fakülte Yönetim Kurulu Üyesi, Fen Fakültesi, Koç Üniversitesi (2008)
- Kadir Has Üniversitesi Dış Danışma Kurulu (2008)
- Başeditör, Turkish Journal of Physics (2009-)
- Rektör Yardımcısı, Sabancı Üniversitesi (2009-)