

P. Chandra - Curriculum Vitae

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Professional Experience:

2003-Present	Professor, Rutgers University
2001-2003	Senior Research Scientist, NEC Research Institute
1990-2001	Research Scientist, NEC Research Institute
1988-1990	Postdoctoral Fellow, Exxon Research and Engineering Center
1988	Ph.D., University of California at Santa Barbara
1987-1988	Research Visitor, Princeton University
1983-1987	Research Assistant, University of California at Santa Barbara
1981-1983	Research Technician, Exxon Research and Engineering Center
1981	B. Sc., Summa cum laude, Yale University

External Professional Activities

2006-2009	Member, Condensed Matter Grant Selection Committee for NSERC
Summer 2006	Lecturer, Princeton Summer School on Condensed Matter Physics
Spring 2003	Organizer, ITP Workshop on Nonequilibrium Quantum Dynamics
2002-present	Member, Editorial Board, New Journal of Physics
Summer 2002	Organizer, Aspen Center for Physics Workshop on Glassy Systems
2000-present	Member, Physical Sciences Panel, National Research Council
1995-present	Member of the Advisory Group, Aspen Center for Physics

Awards, Grants and Patents

2008	Teaching Award, Society of Physics Students, Rutgers University
2006-2010	NSF Grant "Design and Realization of Decoherence-Free Nanoscale Superconducting Qubits," (NIRT-ECS with M. Gershenson, L.B. Ioffe and B. Altshuler; \$1.2 M)
2002-2006	NSF Grant "Nanoscale Quantum Systems: Excitations and Control" (NIRT-DMR with B. Altshuler and L.B. Ioffe; \$892,000)
1997	"Superconducting Fault-Tolerant Programmable Memory Cell Incorporating Josephson Junctions," (with L. Ioffe) US Patent No. 5,629,889.

Research Interests

Unconventional Magnetism, Minimalist Models of Glasses, Josephson Arrays, Phenomenological Approaches to Ferroelectrics, and Quantum Criticality.

Publications:

1. "Determination of the Exposure Rate Constant for I-125 Using a Scintillation Detector," R.J. Schulz, P. Chandra and R. Nath, *Medical Physics*, **7**, 4 (1980).
2. "Refractive Index Data from $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{P}_{1-y}$," P. Chandra, L. Coldren and K. Strege, *Electronic Letters*, **7**, 1 (1981).
3. "Mie Scattering Interferometer and Its Application to the Study of Raman Scattering from Molecules at a Mercury Interface," A.Z. Genack, K.P. Leung, H.W. Deckman, P. Chandra and J.I. Gersten, *Applied Optics*, **23**, 4410 (1984).
4. "Delayed Nucleation at a Weakly First Order Transition", P.B. Littlewood and P. Chandra, *Phys. Rev. Letters*, **57**, 19 (1986).
5. "A Possible Spin Liquid State at Large S for the Frustrated Square Heisenberg Lattice," P. Chandra and B. Doucot, *Phys. Rev. B*, **38**, 9335, (1988).
6. "Nucleation in the Presence of Long-Range Interactions," P. Chandra, *Phys Rev. A*, **39**, 3672, (1989).
7. "Pauli Susceptibility at a Peierls Transition," P. Chandra *J. Phys. Cond. Matt.*, **1**, L3709 (1989).
8. "Fluctuation Effects on the Pauli Susceptibility at a Peierls Transition," P. Chandra, *J. Phys. Cond. Matt.*, **1**, 10067, (1989).
9. "Twisted Magnets and Twisted Superfluids," P. Chandra and P. Coleman, *Int. J. Mod Phys. B*, **3**, 1720 (1989).
10. "Ising Phase Transition in Frustrated Heisenberg Models," P. Chandra, P. Coleman and A.I. Larkin, *Phys. Rev. Lett.*, **64** 88 (1990).
11. "A Quantum Fluids Approach to Frustrated Heisenberg Models," P. Chandra, P. Coleman and A.I. Larkin, *J. Phys. Cond. Matt.*, **2**, 7933 (1990).
12. "Chiral Fluctuations: Short or Long Wavelength?" I. Ritchey, P. Chandra and P. Coleman, *Phys. Rev. Lett.*, **64** 2583 (1990).
13. "Quantum Spin Nematics: Moment-Free Magnetism," P. Chandra and P. Coleman, *Phys. Rev. Lett.*, **66**, 100 (1991).
14. "Questions, Controversies and Frustration in Quantum Antiferromagnetism," P. Chandra, P. Coleman and I. Ritchey, *Int. J. Mod. Phys. B*, **1&2**, 171 (1991).
15. "Magnetism Without a Moment: Spin Nematics and Beyond," P. Chandra, P. Coleman and I. Ritchey, *J. Appl. Phys.*, **69**, 4974 (1991).
16. "Structure Factor for Microemulsions with Finite Spontaneous Curvature," P. Chandra and S.A. Safran, *Langmuir*, **7** 1952 (1991).
17. "Curvature-Induced Interactions in Microemulsions," P. Chandra and S.A. Safran, *Europhys. Lett*, **17**, 691 (1992).

18. “Nonlinear Susceptibility as a probe of Tensor Spin Order in URu₂Si₂,” A.P. Ramirez, P. Coleman, P. Chandra, E. Bruck, A.A. Menovsky, Z. Fisk and E. Bucher, *Phys. Rev. Lett.*, **68**, 2680 (1992).
19. “The Anisotropic Kagome Antiferromagnet: A Topical Spin Glass?” P. Chandra, P. Coleman and I. Ritchey, *J. de Physique*, **3**, 591 (1993).
20. “Spin-Folding in the Two-Dimensional Heisenberg Kagome Antiferromagnet,” I. Ritchey, P. Chandra and P. Coleman, *Phys. Rev. B*, **47**, 15342 (1993).
21. “Nonlinear Susceptibility Measurements in Heavy Fermion Systems,” P. Chandra, A.P. Ramirez, P. Coleman, E. Bruck, A.A. Menovsky, Z. Fisk and E. Bucher, *Physica B*, **199&120**, 426 (1994).
22. “Reply to Comment on Quantum Spin Nematics: Moment-Free Magnetism,” P. Chandra and P. Coleman, *Phys. Rev. Lett*, **72**, 1944 (1994).
23. “Spin Liquids on the Husimi Cactus,” P. Chandra and B. Doucot, *J. Phys. A: Math. Gen.*, **27**, 1541 (1994).
24. “Finite-Temperature Transition into a Power-Law Spin Phase with an Extensive Zero-Point Entropy,” P. Chandra, P. Coleman and L.B. Ioffe, *Phys. Rev. B*, **49**, 12897 (1994).
25. “Nonlinear Susceptibility: A Direct Test of the Quadrupolar Kondo Effect in UBe₁₃,” A.P. Ramirez, P. Chandra, P. Coleman, Z. Fisk, J.L. Smith and H.R. Ott, *Phys. Rev. Lett.*, **73**, 3018 (1994).
26. “Possible Glassiness in a Periodic Long-Range Josephson Array”, P. Chandra, L.B. Ioffe and D. Sherrington, *Phys. Rev. Lett.*, **75**, 713 (1995).
27. “New Outlooks and Old Dreams in Quantum Antiferromagnets,” P. Chandra and P. Coleman in Strongly Interacting Fermions and High Temperature Superconductivity: Les Houches Lecture Notes (Session LVI), ed. B. Doucot and J. Zinn-Justin (North-Holland, 1995)
28. “Charge Modulation in La_{1.67}Sr_{0.33}NiO₄: A Bulk Thermodynamic Study”, A. P. Ramirez, P.L. Gammel, S-W. Cheong, D.J. Bishop and P. Chandra, *Phys. Rev. Lett.*, **76**, 447 (1996).
29. “Glassy Behavior in the Ferromagnetic Ising Model on a Cayley Tree”, R. Melin, J.C. Angles d’Auriac, P. Chandra and B. Doucot, *J. Phys. A*, **29**, 5773 (1996).
30. “Glass Formation in a Periodic Long-Range Josephson Array”, P. Chandra, L.B. Ioffe and M.V. Feigelman, *Phys. Rev. Lett.*, **76**, 4805 (1996).
31. “Seeking a Simple Complex System,” G. Aeppli and P. Chandra, *Science* **275**, 177 (1997).
32. “An Experimentally Realizable Weiss Model for Disorder-Free Glassiness,” P. Chandra, M.V. Feigelman, M.E. Gershenson and L.B. Ioffe, in *Complex Behavior in Glassy Systems*, eds. M. Rubi and C. Perez-Vicente, Springer, Berlin (1997).
33. “History-Dependence and Ageing in a Periodic Long-Range Josephson Array”, P. Chandra, M.V. Feigelman, L.B. Ioffe and D.M. Kagan, *Phys. Rev. B*, **56**, 11553 (1997).
34. “Enumeration of States in a Periodic Glass”, P. Chandra, L.B. Ioffe and D.S. Sherrington, *Phys. Rev. B*, **58**, 14669 (1998).

35. "Rigidity and Memory in a Simple Glass", P. Chandra and L.B. Ioffe, in *Rigidity Theory and Applications*, eds. M. Thorpe and P. Duxbury (Kluwer Academic/Plenum Publishers, New York, 1999).
36. "Displacement Charge Patterns and Ferroelectric Domain Wall Dynamics Studied by In-Situ TEM", A. Krishnan, M.M.J. Treacy, M.E. Bisher, P. Chandra and P.B. Littlewood, *Proceedings of the 1999 MRS Annual Meeting*, (MRS Conference Proceedings, 1999).
37. "Hidden Order in URu_2Si_2 ", N. Shah, P. Chandra, P. Coleman and J.A. Mydosh, *Phys. Rev. B*, **61**, 564 (2000).
38. "Two-Dimensional Periodic Frustrated Ising Models in a Transverse Field", R. Moessner, S.L. Sondhi and P. Chandra, *Phys. Rev. Lett.*, **84**, 4457 (2000).
39. "Distribution of Attraction Basins in a Family of Simple Glasses", P. Chandra and L.B. Ioffe, *J. Phys. Condens. Matt.* **12** 6641 (2000).
40. "Maxwellian Charge on Domain Walls", A. Krishnan, M.M.J. Treacy, M.E. Bisher, P. Chandra and P.B. Littlewood, *Fundamental Physics of Ferroelectrics 2000*, ed. R.E. Cohen (AIP Conference Proceedings, 2000) pp. 191 - 200.
41. "Spin Models on Non-Euclidean Hyperlattices: Griffiths Phases without Extrinsic Disorder," J.C. Anglès d'Auriac, R. Mélin, P. Chandra and B. Douçot, *J. Phys. A.*, **34**, 675, (2001).
42. "A Superconducting Associative Memory that is Defect-Tolerant", P. Chandra and L.B. Ioffe, *J. Phys. C*, **13**, L697 (2001).
43. "The Phase Diagram of the Hexagonal Lattice Quantum Dimer Model", R. Moessner, S.L. Sondhi and P. Chandra, *Phys. Rev B.***64**, 144416 (2001).
44. "Efficient Switching and Domain Interlocking Observed in Polyaxial Ferroelectrics", A. Krishnan, M.M.J. Treacy, M.E. Bisher, P. Chandra and P.B. Littlewood, *Integrated Ferroelectrics*, **43**, 31 (2002).
45. "Pressure-Induced Magnetism: Implications for Hidden Order in URu_2Si_2 , " P. Chandra, P. Coleman and J.A. Mydosh, *Physica B*, **312-313**, 397 (2002).
46. "Hidden Orbital Order in URu_2Si_2 ", P. Chandra, P. Coleman, J.A. Mydosh and V. Tripathi, *Nature*, **417**, 831 (2002).
47. "Depolarization Corrections to the Coercive Field in Thin-Film Ferroelectrics", M. Dawber, P. Chandra, P.B. Littlewood and J.F. Scott, *J. Phys.: Cond. Mat.* **15** L393 (2003).
48. "Hidden Order in URu_2Si_2 : The Need for a Dual Description," J.A. Mydosh, P. Chandra, P. Coleman and V. Tripathi, *Acta Polonium* **34** 659 (2003).
49. "The Case for Phase Separation in URu_2Si_2 ", P. Chandra, P. Coleman, J.A. Mydosh and V. Tripathi, *J. Phys.: Cond. Mat.* **15** S1965 (2003).
50. "A Dynamical Study of the Quantum $p = 2$ Spherical Model," M. Rokni and P. Chandra, *Phys. Rev. B* **69** 094403 (2004).
51. "Scaling of the Coercive Field with Thickness in Thin-Film Ferroelectrics," P. Chandra, M. Dawber, P.B. Littlewood and J.F. Scott, *Ferroelectrics* **313** 7-14 (2004).

52. "Itineracy and Hidden Order in URu_2Si_2 ", V. Tripathi, P. Chandra and P. Coleman, *J. Phys. Cond. Mat.* **17** 5285 (2005).
53. "A Landau Primer for Ferroelectrics," P. Chandra and P.B. Littlewood, in K. Rabe, Ch. H. Ahn and J-M. Triscone eds., **The Physics of Ferroelectrics: A Modern Perspective** (Springer-Verlag, Berlin, 2007).
54. "Sleuthing Hidden Order," V. Tripathi, P. Chandra and P. Coleman, *Nature Physics* **3** 78 (2007).
55. "Modelling Thickness-Dependence of Ferroelectric Thin-Film Properties," L. Palova, P. Chandra and K.M. Rabe, *Phys. Rev. B* **76** 014112 (2007).
56. "Quantum Critical Paraelectrics and the Casimir Effect in Time," L. Palova, P.Chandra and P. Coleman, arXiv:0803:1517.