

P. Chandra - Curriculum Vitae

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Professional Experience:

2003-Present

2001-2003

1990-2001

1988-1990

1988

1987-1988

1983-1987

1981-1983

1981

Professor, Rutgers University

Senior Research Scientist, NEC Research Institute

Research Scientist, NEC Research Institute

Postdoctoral Fellow, Exxon Research and Engineering Center

Ph.D., University of California at Santa Barbara

Research Visitor, Princeton University

Research Assistant, University of California at Santa Barbara

Research Technician, Exxon Research and Engineering Center

B. Sc., Summa cum laude, Yale University

External Professional Activities

2009 - present

2009 - present

2008 - present

2006-2009

Summer 2006

Spring 2003

2002-present

Summer 2002

2000-2006

1995-present

Member, Committee on the Status of Women in Physics, APS

Member, Selection Committee, Maria Goeppert Mayer Prize (APS)

Member, Faculty Advisory Board, Rutgers University Press

Member, Condensed Matter Grant Selection Committee for NSERC

Lecturer, Princeton Summer School on Condensed Matter Physics

Organizer, ITP Workshop on Nonequilibrium Quantum Dynamics

Member, Editorial Board, New Journal of Physics

Organizer, Aspen Center for Physics Workshop on Glassy Systems

Member, Physical Sciences Panel, National Research Council

Member of the Advisory Group, Aspen Center for Physics

Awards, Grants and Patents

2008

2006-2010

2002-2006

1997

Teaching Award, Society of Physics Students, Rutgers University

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)

NSF Grant "Nanoscale Quantum Systems: Excitations and Control"
(NIRT-DMR with B. Altshuler and L.B. Ioffe; \$892,000)

"Superconducting Fault-Tolerant Programmable Memory Cell
Incorporating Josephson Junctions," (with L. Ioffe)

US Patent No. 5,629,889.

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, *Phys. Rev. B* **79** 075101 (2009).
57. "The Casimir Effect from a Condensed Matter Perspective," L. Palova, P. Chandra and P. Coleman, *Amer. J. Phys.* **77** 1055 (2009).
58. "The Gathering Storm of Data," P. Chandra and P. Coleman, *Nature Physics* **5** 625, (2009).
59. "Magnetostructural Effect in the Multiferroic $BiFeO_3$ - $BiMnO_3$ Checkerboard from First Principles," L. Palova, P. Chandra and K.M. Rabe, *Phys. Rev. Lett.* **104**, 037202 (2010).
60. "Spin State Crossover in the Multiferroic $Ca_3Co_2-xMn_xO_6$ ", R. Flint, H.-T. Yi, P. Chandra, S.-W. Cheong and V. Kiryukhin, *Phys. Rev. B* **81**, 09402 (2010).
61. "Effects of Nematic Fluctuations on the Elastic Properties of Iron Arsenide Superconductors," R.M. Fernandez, L.H. VanBebber, S. Bhattacharya, P. Chandra, V. Keppens, D. Mandrus, M.A. McGuire, B.C. Sales, A.S. Safena and J. Schmalian, *Phys. Rev. Lett.* **104**, 05700 (2010).
62. "Multiferroic $BiFeO_3$ - $BiMnO_3$ Nanoscale Checkerboard from First Principles," L. Palova, P. Chandra and K.M. Rabe, *Phys. Rev. B* **82**, 075432 (2010) (Editor's Suggestion).
63. "Magnetization, Maxwell's Relations and the Local Physics of $Th_{1-x}U_xRu_2Si_2$," A. Toth, P. Chandra, P. Coleman, G. Kotliar and H. Amitsuka, arXiv:1008.4798, *Phys. Rev. B* **82** 235116 (2010) (Editor's Suggestion).