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Education:
Ph.D. in Physics - Indian Institute of Technology Delhi
Post-Doctoral Research - University of California Los Angles

Previous Appointments
Research Faculty - University of California Los Angles, Staff Scientist – Brookhaven National Laboratory, Professor – Department of Physics Indian Institute of Technology Kanpur, Director – National Physical Laboratory New Delhi, Visiting Professor – University of Maryland College Park, Visiting Scholar – University of Kentucky Lexington, Senior Fellow National Research Council - Air Force Research Laboratory, Dayton Ohio.

Professional Recognitions
Elected Fellow - American Physical Society, Elected Fellow - Indian National Science Academy, Jolliet Fellow – ESPCI Paris, Otto Møsted Visiting Professor – Danish Technological University, Senior Fellow – NRC at AFRL-WPAFB, Editor – Journal of Magnetism and Magnetic Materials, Member Editorial Board – European Journal of Applied Physics.

Research Interests
Magnetism and superconductivity in low dimensional systems: spin-orbit effects at heavy metal – ferromagnet and topological insulator – ferromagnet interfaces, interface magnetism, Magnetogalvanic and magnetocaloric effects in magnetic heterostructures, topological spin configurations in magnetic thin films, radio frequency magnetization dynamics, photomagnetism; vortex dynamics and dissipation in superconductors, interface superconductivity; Thin film epitaxy and synthesis of novel thin film heterostructures with physical and chemical vapor deposition techniques.

Publications:

A. Book Chapters

1. R. C. Budhani, "Studies of vortex localization by columnar defects in high temperature superconductors" in Studies of High Temperature Superconductors, Ed. A. V. Narlikar (Nova Science, New York 2000).Vol.33, p.113.

2. M. Strongin, D. L. Miller, R. C. Budhani and M. W. Ruckman. "Thin Films" In the Encyclopedia of Physics, Eds. R. G. Lerner and L. Trigg, (VCH Publishers Inc. New York 1990) p.1276.

3. R. C. Budhani and R. F. Bunshah "Thin film deposition processes for electronic ceramics". Modern Ceramics, Ed. J. G. P. Binner (Noyes, New Jersey 1990) p.369.

B. Publications in International Journals (Publications of the new millennium)

1. S. Srivastava, N. K. Pandey, P. Padhan and R.C. Budhani, "Current switching effects induced by electric and magnetic fields in Sr-subsituted in PrCaMnO films", **Phys. Rev. B62, 13868 (2000)**.

2. Leena K Sahoo, K. J. Singh and R. C. Budhani, "Optical response in the mixed state of Tl-2212 superconducting films", **Physica C331, 157(2000).**

3. R. C. Budhani, C. Roy, A. R. Moodenbaugh, L. H. Lewis and Q. Li, "Magnetic ordering and granularity effects in LaBaMnO", **J. Appl. Phys., 87, 2490 (2000).**

4. Patnaik, R. C. Budhani and M. Konczykowski, "Effects of granularity and strong pinning on high frequency vortex dynamics in $(BiPb)_2Sr_2Ca_2Cu_3O_{10}$ superconducting platelets"
Solid State Commun., 113, 109(2000).

5. S. Patnaik, R. C. Budhani, M. Konczykowski, Y. L. wang and M. Suenaga, "Radio frequency vortex dynamics in heavy ion irradiated $(Bi\text{-}Pb)_2Sr_2Ca_2Cu_3O_{10}$ superconducting platelets", **Physica C349, 155(2001).**

6. S. Patnaik, R. C. Budhani, M. Konczykowski, Y. L. Wang and M. Suenaga, "Vortex phases and c- axis correlations in as grown and heavy ion irradiated $(BiPb)_2Sr_2Ca_2Cu_3O_{10}$ tapes; a flux transformer experiment", **J. Supercond. Sci. Technol. 13, 337(2000).**

7. Amlan Biswas, P. Fournier, V. N. Smolyaninova, R. C. Budhani, J. S. Higgins and R. L.Greene, "Gapped tunneling spectra in the normal state of $Pr_{2-x}Ce_xCuO_4$",
Phys. Rev. B64, 104519(2001).

8. P. Padhan, N. K. Pandey, S. Srivastava, R. K. Rakshit, V. N. Kulkarni and R. C. Budhani, "Transition from double exchange ferromagnetic metal to hysteretic insulator Mimicking charge-ordering effects in ultra thin films of a perovskite manganite", **Solid State Commun. 117, 27(2001)**.

9. Leena K. Sahoo, S. Patnaik, R. C. Budhani, and W. L. Holstein, "Local Hall probe based susceptometry of $Tl_2Ba_2CaCu_2O_8$ epitaxial flims: Critical state and flux dynamics in collinear ac and dc magnetic field", **Phys. Rev. B63, 214501(2001).**

10. N. K. Pandey, P. Padhan and R. C. Budhani, "Percolative transport in the vicinity of charge order–ferromagnetic transition in a hole doped manganite", **Pramana 58, 1075(2002).**

11. K. Senapati and R. C. Budhani, "Dynamics of superconducting mixed state inYBCO/PBCO Superlattices in radio frequency regime", **Pramana 58, 971(2002).**

12. R. C. Budhani, M. C. Sullivan, C. J. Lobb and R. L. Greene, "Thermopower and Hall conductivity in the magnetic-field-driven normal state of $Pr_{2-x}Ce_xCuO_4$ superconductors", **Phys. Rev. B(Rapid Commun.), 65, 100517(2002)**.

13. K. Senapati, Leena K. Sahoo and R. C. Budhani, "Irreversibility field and superconducting screening currents in $EuBa_2Cu_3O_7$ films", **Appl. Phys. Lett. 80, 619(2002)**.

14. R. C. Budhani, N. K. Pandey, P. Padhan, S. Srivastava and R. Lobo, "Electric and magnetic field driven non-linear charge transport and magnetic ordering in epitaxial thin films of $PrCaSrMnO_3$", **Phys. Rev. B, 65, 14429(2002)**.

15. V. N. Smolyaninova, S.E. Lofland, C. Hill, R. C. Budhani, Z. S. Gonen, B. W. Eichhorn and R. L. Greene, "Effects of A-site cation disorder on charge ordering and ferromagnetism of $La_{0.5}Ca_{0.5-y}Ba_yMnO_3$", **J. Mag. Mag. Mater. 248, 348(2002).**

16. Leena K. Sahoo, R. C. Budhani, D. Kanjilal and G. K. Mehta, "AC response of vortices subjected to pinning by columnar defects in $Tl_2Ba_2CaCu_2O_8$ epitaxial films",**Physica C383, 8(2002).**

17. R. C. Budhani, M. C. Sullivan, C. J. Lobb and R. L. Greene, "Anomalous magnetothermopower in the mixed state of the electron-doped high T_c superconductors", **Phys. Rev. B 66, 052506(2002)**.

18. N. K. Pandey, R. P. S. M. Lobo and R. C. Budhani, "Electric-field-tuned metallic fraction and dynamic percolation in a charged-ordered manganite", **Phys. Rev. B67, 054413(2003).**

19. P. Padhan and R. C. Budhani, "Interfacial disorder driven metal-insulator transition and enhanced low temperature magnetoresistance in $La_{0.7}Ca_{0.3}MnO_3/LaMnO_3$ superlattices", **Phys. Rev. B67, 024414(2003).**

20. P. Padhan, R. C. Budhani and R. P. S. M. Lobo, "Overdamped interlayer exchange coupling and disorder dominated magnetoresistance in $La_{0.7}Ca_{0.3}MnO_3/LaMnO_3$ superlattices", **Europhys. Lett. 63, 771(2003).**

21. P. Padhan and R. C. Budhani, "Perpendicular-to-plane magnetoresistance in $La_{0.7}Ca_{0.3}MnO_3/LaNiO_3$ superlattices: The effects of interfacial disorder and spin diffusion on charge transport", **Mod. Phys. Lett. B17, 1517(2003).**

22. K. Senapati, S. Chakravarti, Leena K. Sahoo and R. C. Budhani, "A miniature Hall sensor based ac-susceptometer for measurements of vortex and superfluid dynamics in superconducting films", **Rev. Sci. Instr. 75, 141(2004).**

23. P. Padhan, W. Prellier, Ch. Simon and R. C. Budhani, "Current induced metallic behavior in $Pr_{0.5}Ca_{0.5}MnO_3$ films: Competition between Joule heating and non-linear conduction", **Phys. Rev. B 70, 134403(2004).**

24. K. Senapati and R. C. Budhani, "Clean limit pair breaking and two dimensional vortex dynamics in ferromagnet-superconductor heterostructures" **Phys. Rev. B 70, 174506(2004).**

25. R. C. Budhani, Prita Pant, R. K. Rakshit, K. Senapati, S. Mandal, N. K. Pandey and J. Kumar, "Magnetotransport in epitaxial films of the degenerate semiconductor $Zn_{1-x}Co_xO$", **J. Phys. Condens. Matter, 17, 75(2005).** ***Listed as Top Papers 2005 Show Case***

26. P. Padhan and R. C. Budhani, "Giant quenching and mobile carrier assisted recovery of ordered moments in $La_{0.7}Ca_{0.3}MnO_3/Er_{0.7}Sr_{0.3}MnO_3$ and $La_{0.7}Ca_{0.3}MnO_3/LaNiO_3$ superlattices", **Phys. Rev. B 71, 144415(2005).**

27. K. Senapati and R. C. Budhani, "Superconducting and normal state interlayer exchange coupling in $La_{0.67}Sr_{0.33}MnO_3$-$YBa_2Cu_3O_7$- $La_{0.67}Sr_{0.33}MnO_3$ epitaxial trilayers", **Phys. Rev. B 71, 224507(2005).**

28. M. Golosovsky, M. Abu-Teir, D. Davidov, O. Arnache, P. Monod, N. Bontemps and R. C. Budhani, "Microwave studies of thin manganite films on SrTiO3 substrates", **J. Appl. Phys. 98, 084902(2005).**

29. R. K. Rakshit and R. C. Budhani, "Magnetic relaxation and superparamagnetism in non-interacting, disordered CoPt nanoparticles" **J. Phys. D Appl. Phys. 39, 1743(2006).**

30. P. Padhan, W. Prellier and R. C. Budhani, "Antiferromagnetic coupling and enhanced magnetization in all-ferromagnetic superlattices" **Appl. Phys. Lett. 88, 192509(2006).**

31. S. Chaudhuri and R. C. Budhani, "Studies of structural, magnetic, electrical and photoconducting properties of $Bi_{1-x}Ca_xMnO_3$ epitaxial films" **Phys. Rev. B 74, 054420 (2006).**

32. K. Senapati, N. K. Pandey, R. Nagar and R. C. Budhani, "Normal state transport and vortex dynamics in thin films of two structural polymorphs of superconducting NbN"
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33. S. Mandal, S. K. Bose, R. Sharma, R. C. Budhani, P. Padhan and W. Prellier, "Growth of [110] La2/3Sr1/3MnO3 – YBa2Cu3O7 heterostructures"
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Appl. Phys. Lett. 89,202511 (2006).

35. R. K. Rakshit, Sayantani Bhattacharya and R. C. Budhani, "Quenching of surface plasmon modes in colloidal silver nanoparticles on ozonization" **Nano 1, 229(2006).**

36. P. K. Muduli, S. K. Bose and R. C. Budhani, "Stress-induced competing ferromagnetic and antiferromagnetic orders in epitaxial films of A-type antiferromagnet $La_{0.45}Sr_{0.55}MnO_3$. **J. Phys. C Condens. Matter 19, 226204(2007).**

37. Pengcheng Li, Soumen Mandal, R. C. Budhani and R. L. Greene, "Correlation between incoherent phase fluctuations and disorder probed with Nernst Effect measurements on $Y_{1-x}Pr_xBa_2Cu_3O_7$", **Phys. Rev. B 75, 184509(2007).**

38. K. Senapati and R. C. Budhani, "Appearance of inhomogeneous superconducting state in $La_{0.67}Sr_{0.33}MnO_3$-$YBa_2Cu_3O_7$- $La_{0.67}Sr_{0.33}MnO_3$ trilayers" **PRAMANA – J. of Phys. 69, 267(2007).**

39. S. Chaudhuri, R. C. Budhani, Jiaquing He and Yimei Zhu, "Scaled frequency dependent transport in the mesoscopically phase – separated colossal magnetoresistive manganite $La_{0.625-y}Pr_yCa_{0.375}MnO_3$" **Phys. Rev. B 76, 132402(2007).**

40. V. V. Yurchenko, D. V. Shantsev, T. H. Johansen, M. R. Nevala, I. J. Maasilta, K. Senapati and R. C. Budhani, "Reentrant stability of superconducting films and vanishing dendritic flux instability" **Phys. Rev. B 76, 0925041(2007)**.

41. M. Golosovsky, P. Monod, P. K. Muduli, R. C. Budhani, L. Mechin and P. Perna, "Nonlinear microwave absorption in epitaxial $La_{0.7}Sr_{0.3}MnO_3$ films and its relation to colossal magnetoresistance" **Phys. Rev. B76, 184414(2007)**.

42. M. Golosovsky, P. Monod, P. K. Muduli, and R. C. Budhani, "Spin wave resonance in $La_{0.7}Sr_{0.3}MnO_3$ films: measurements of spin wave stiffness and anisotropy fields" **Phys. Rev. B 76, 184413(2007).**

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44. Udai R. Singh, S. Chaudhuri, S. K. Choudhary, R. C. Budhani and A. K. Gupta, "Tunneling studies of charge ordered gap on the surface of $La_{0.35}Pr_{0.275}Ca_{0.375}MnO_3$" **Phys. Rev. B 77, 014404(2008).**

45. R. K. Rakshit, S. K. Bose, R. Sharma, R. C. Budhani, T. Vijaykumar, S. J. Neena and G. U. Kulkarni, "Correlations between morphology, crystal structure and magnetization of epitaxial cobalt-platinum films grown with pulsed laser ablation" **J. Appl. Phys.103, 023915(2008).**

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47. R. K. Rakshit, S. K. Bose, R. Sharma, N. K. Pandey and R. C. Budhani, "Lattice-mismatch-induced granularity in CoPt-NbN and NbN-CoPt superconductor-ferromagnet heterostructures: Effect of strain" **Phys. Rev. B77, 094505(2008)**.

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50. Soumen Mandal, R. C. Budhani, J. He and Y. Zhu, "Diverging giant magnetoresistance in the superconducting state of $La_{2/3}Sr_{1/3}MnO_3$-$Y_{1-x}Pr_xBa_2Cu_3O_7$-$La_{2/3}Sr_{1/3}MnO_3$ ferromagnet-superconductor-ferromagnet trilayers" **Phys. Rev. B 78, 094502(2008).**

51. S. K. Bose, R. Sharma and R. C. Budhani, "Percolative spin-dependent transport in mesoscopic epitaxial Fe plaquettes of tailored connectivity" **Phys. Rev. B 78, 115403(2008).**

52. S. K. Bose, K. Senapati and R. C. Budhani, "Design and fabrication of cryogenic probe for penetration depth measurements down to 1.8K" **J. Phys. Conf. Sr. (LT25) 150, 012005(2009).**

53. P. K. Muduli, R. C. Budhani, D. Topwal and D. D. Sarma, "Spin polarized electron tunneling in polycrystalline Sr_2FeMoO_6 thin films" **J. Phys. Conf. Sr. (LT25) 150, 042132(2009).**

54. P. K. Muduli and R. C. Budhani, "Magnetotransport in polycrystalline $La_{2/3}Sr_{1/3}MnO_3$ films of controlled grain size" **J. Appl. Phys. 105, 113910(2009).**

55. P. K. Muduli and R. C. Budhani, "Tailoring exchange bias in half-metallic $La_{2/3}Sr_{1/3}MnO_3$ for spin valves" **Appl. Phys. Lett. 94, 202510(2009)**.

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58. S. Chaudhuri, N. K. Pandey, Shrikant Saini, and R. C. Budhani, "Dynamics of a robust photo-induced insulator-metal transition driven by coherent and broad-band light in epitaxial films of $La_{0.625-y}Pr_yCa_{0.375}MnO_3$" **J. Phys.: Condens. Matter 22, 275502 (2010).**

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60. P. K. Rout and R. C. Budhani, "Interface superconductivity in $La_{1.48}Nd_{0.4}Sr_{0.12}CuO_4$/ $La_{1.84}Sr_{0.16}CuO_4$ bilayers", **Phys. Rev. B 82, 024518 (2010).**

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tunable optical switching of a Mott insulator-band insulator interface", **Advanced Materials 22, 4448 (2010)**

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63. S. K. Bose and R. C. Budhani "Flux-closure pattern in a two-dimensional NbN–Fe superconductor-ferromagnet nanocomposite: Anisotropy of the angular Magnetoresistance", **J. Appl. Phys. 108, 103916 (2010).**

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68. J. J. Pulikkotil, S. Auluck, Pramod Kumar, Anjana Dogra, and R. C. Budhani, "Energetics and electronic structure of La/Sr disorder at the interface of $SrTiO_3/LaTiO_3$ heterostructure" **Appl. Phys. Lett.** 99**, 081915 (2011).**

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70. Gyanendra Singh, P.C. Joshi, and R.C. Budhani, "Non-planar spin texture driven dissipation in a ferromagnet–superconductor bilayer" **Physica C 472, 44 (2012).**

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72. M. Golosovsky, P. Monod, P. K. Muduli and R. C. Budhani, "Low field microwave absorption in epitaxial La0.7Sr0.3MnO3 films that results from the angle-tuned ferromagnetic resonance in the multidomain state" **Phys. Rev. B 85, 184418(2012).**

73. J. Biscaras, N. Bergeal, S. Hurand, C. Grossetete, A. Rastogi, R. C. Budhani, D. LeBoeuf, C. Proust and J. Lesueur, "Two-dimensional superconducting phase in LaTiO3/SrTiO3 Heterostructures Induced by High-mobility carrier doping" **Phys. Rev. Lett. 108, 247004(2012).**

74. Gyanendra Singh, P. K. Rout, Rajni Porwal, and R. C. Budhani, "Strain induced magnetic domain evolution and spin reorientation transition in epitaxial manganite films" **Appl. Phys. Lett. 101, 022411(2012).**

75. A. Rastogi, J. J. Pullikotil, S. Auluck, Z. Hossain and R. C. Budhani, "Photoconducting state and its perturbation by electrostatic fields in oxide-based two-dimensional electron gas" **Phys. Rev. B 86, 075127(2012).**

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