

# Curriculum Vitae

## Dr Ratnakar Palai

Assistant Professor  
Department of Physics  
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### Education:

- 2001-2004 *University of Strathclyde, Glasgow, UK*  
**PhD (Physics)**
- **Thesis Title** – Growth, Optimisation and characterisation of Pulsed Laser Deposited Nd-based High-Temperature Superconducting Thin Films for Device Applications
  - **Supervisors:** Dr. C.M. Pegrum and Prof. G.B. Donaldson
  - **Thesis Examiner:** Prof. J.E. Evetts, University of Cambridge, UK
- 1996- 1998 *Guru Ghasidas University, Bilaspur, India*  
**MSc (Physics), First Class (Gold Medal)**
- Materials Science (specialisation)
  - **Dissertation:** Synthesis and characterisation of some ferroelectric oxide ceramics.
  - **Supervisors:** Prof. R.N.P. Choudhary and Dr. H.S. Tewari
- 1992-1995 *Berhampur University, Berhampur, India*  
**BSc (Physics), First Class Honours**
- Physics (Hons), Chemistry and Mathematics

### Appointment:

- July 2008-continue *University of Puerto Rico, San Juan, PR, USA*  
**Assistant Professor**
- August 2007-July 2008 *University of Puerto Rico, San Juan, PR, USA*  
**Research Faculty**
- May 2006-July 2007 *University of Puerto Rico, San Juan, PR, USA*  
**Postdoctoral Research Fellow**
- May 2004-May 2006 *The University of Birmingham, Birmingham, UK*  
**Postdoctoral Research Fellow**
- June 1998- Jan 2001 *Indian Institute of Technology (IIT), Kharagpur, India, and  
A.N. College, Magadh University, Patna, India*  
**Research /Scholar/Assistant/Fellow**

### Publications

**30+ (please see Appendix-I)**  
(6-Physical Review B; 2- Journal of Physics D: Applied Physics; 3-IEEE Transaction; 2-Physica C, 1- Journal of American Ceramics Society, etc.)

### Citations/H-index

**149/6** (as of Jan 2010)

**Funded Projects:**

Fabrication and Characterization of GaN-based Magnetic Semiconductor Superlattices for Spintronic Applications  
**PI, NASA PR Space Grant Consortium 2009-2010**

Fabrication and Characterization of Nanostructured Devices  
**PI, Institute for Functional Nanomaterials (IFN), UPR-NSF-EPSCoR Institute, 2008-2010**

Development and Understanding of Multifunctional Nanostructured Spintronic and Magnetoelectric Materials  
**Co-PI, DoE-EPSCoR Implementation Award 2008-2011**

**Research Projects (Pre-PhD):**

- July 2000-Jan 2001
- Study of direct selective laser sintering of metal powders. (Dr. A. Roy Choudhary and Prof. P.K. Mishra)
  - Department of Mechanical Engineering, IIT Kharagpur
- Jan 1999-July 2001
- Synthesis and characterization of some lead-based ferroelectric relaxors for devices. (Dr. S. Sharma and Prof. R.N.P. Choudhary)
  - Department of Physics & Meteorology, IIT Kharagpur
- June 1998-Jan 1999
- Development of 2W/5W thermoelectric generator from Indian galena ore. (Prof. H.N. Acharaya and Prof. R.N.P. Choudhary)
  - Department of Physics & Meteorology, IIT Kharagpur
  -

**Teaching Experience:**

- May 2004-April 2004
- University of Birmingham, Birmingham, UK*  
**Postgraduate Demonstrator**
- Whilst working as postdoctoral research fellow, I had constantly been involved with the supervision of undergraduates and postgraduates in their practical and tutorial classes. I had been teaching almost 6hrs per week.
- Jan 2001- May 2004
- University of Strathclyde, Glasgow, UK*  
**Postgraduate Demonstrator**
- Whilst undertaking my PhD I had constantly been involved with the supervision of undergraduates and postgraduates in their practical and tutorial classes.

**Fellowships/ Scholarships/Awards**

- December 2009
- "Best Poster Award"** by National Science Foundation (NSF) at the Advanced Workshop on Frontier in Electronics (WOFEO9), Rincon, PR, USA
- February 2008
- "Best Poster Award"** by IEEE UFCC society in ISAF 2008 meeting , Santa Fe, USA
- Jan 2001- April 2004
- ORS (Overseas Research Studentships) scholarship, Secretary of State for Education and Science, Govt. of UK for doing PhD.
- 2003-IoP Travel Bursary
- Institute of Physics (IoP), London, Superconductivity Travel Bursary-2003 to visit Italy.
- 2002- IoP Travel Bursary
- Institute of Physics (IoP), London, Superconductivity Travel Bursary-2002 to visit USA.

- July 2000-Jan 2001 DST (Department of Science & Tech.), Govt. of India.
- Jan 1999- July2000 UGC (University Grants Commission), Govt. of India.
- June 1998- Jan 1999 MECON (I) LTD, Ranchi, India.
- December 1999 • **"Gold Medal"** for being First Class First in MSc 1998, G.G, University, India

**Courses Attended:**

- June 25-July 8, 2005 • ISSE 2005 (International Summer School on Superconductive Electronics), Il Ciocco, Pisa, Italy
- September 2002 • UK Research Councils' Graduate School Programme- 2002, Ayr, UK
- Sept 22-Oct 4, 2001 • 3<sup>rd</sup> SCENET (The European Network for Superconductivity) School on Superconducting Materials and Applications-2001, Athens, Greece
- January 2001 • Superconductivity Winter School-2001, IRC in Superconductivity, University of Cambridge, UK
- December 1999 • Science and Technology of Engineering Materials, Indian Institute of Technology, Kharagpur, India

**Administrative Experience:**

**Sept. 2003- May 2004** Birbeck Court, University of Strathclyde, Glasgow, UK  
**Student Assistant (warden)**

**Interest and Achievements:**

- I have participated in several competitions during my university career and have been given several awards and prizes.
- I am interested in poetry and have had several publications in different international anthologies and magazines.

<b>Referees:</b>	
<p><b>1. Dr. C.M. Pegrum</b>                      (Email: colin@phys.strath.ac.uk) and  <b>2. Prof. G.B. Donaldson</b>                      (Email: g.b.donaldson@strath.ac.uk)                      (PhD Supervisors)                      Department of Physics                      University of Strathclyde                      Glasgow, G4 0NG, UK</p>	<p><b>5. Dr. C.M. Muirhead<sup>1</sup> and 6. Dr. T. J. Jackson<sup>2</sup></b>  <sup>1</sup>School of Physics &amp; Astronomy                      The University of Birmingham, Edgbaston  <sup>2</sup>School of Electrical, Electronics and Computer                      Engineering, Birmingham, B15 2TT, UK  <sup>1</sup>Email: <a href="mailto:c.m.muirhead@bham.ac.uk">c.m.muirhead@bham.ac.uk</a>  <sup>2</sup>Email: t.j.Jackson@bham.ac.uk</p>
<p><b>3. Prof. R.S. Katiyar</b>                      Department of Physics                      University of Puerto Rico                      San Juan, PR, 00931-3343, USA                      Email:rkatiyar@uprrp.edu</p>	<p><b>7. Dr. A. Roy Choudhary<sup>1</sup></b>                      (Email:archie@mech.iitkgp.ernet.in) and  <b>8. Prof. R.N.P. Choudhary<sup>2</sup></b>                      (Email: crnpfl@phys.iitkgp.ernet.in)  <sup>1</sup>Department of Mechanical Engineering and <sup>2</sup>Department                      of Physics &amp; Meteorology                      IIT (Indian Institute of Technology), Kharagpur                      PIN- 721 302, (W.B), India</p>
<p><b>4. Prof. J. F. Scott</b>                      Department of Physics                      University of Cambridge                      Cambridge, UK                      Email: jsc099@esc.cam.ac.uk</p>	<p><b>9. Prof. H. Schmid</b>                      Department of Analytical and Applied Chemistry                      University of Geneva, Switzerland                      Email: hans.schmid@chiam.unige.ch</p>

## Appendix- I: Publications

1. R.N.P. Choudhary, **Ratnakar Palai** and Seema Sharma "Studies of structural, dielectric and electrical properties of lead cadmium tungstate ceramic", *Materials Science & Engineering B*, **77**, 235-240, (2000).
2. R.N.P. Choudhary, **Ratnakar Palai** and Seema Sharma, "Studies of dielectric and varistor behavior of lead manganese tungstate ceramics", *Journal of Materials Science: Materials in Electronics*, **11**, 685-689, (2000).
3. **R. Palai**, R.N.P. Choudhary and H.S. Tewari, "Structural and dielectric properties of  $Ba_4Ti_2R_2Nb_6O_{30}$  (R= Y, Sm and Dy) ferroelectrics", *Journal of Physics and Chemistry of Solids*, **62**, 695-700, (2001).
4. **Ratnakar Palai**, R. N. P. Choudhary and Seema Sharma, "Ferroelectric phase transition in Ni-doped lead molybdate ceramics", *Ferroelectrics*, **256**, 33-45, (2001).
5. **R. Palai**, Seema Sharma and R.N.P. Choudhary, "Synthesis of single phase perovskite  $Pb(Zn_{1/3}Nb_{2/3})O_3$  using  $Pb_3Nb_2O_8$  and ZnO", *Journal of Materials Science Letters*, **20**, 1237-1240, (2001).
6. **Ratnakar Palai**, R.N.P. Choudhary, and Seema Sharma, "Ferroelectric Phase transition in  $Pb(Cd_{1/2}Mo_{1/2})O_3$  Ceramics", *Materials Letters*, **51**, 301-306, (2001).
7. **R. Palai**, R.N.P. Choudhary and H.S. Tewari, "Antiferroelectric phase transition in  $Pb(Mg_{1/2}X_{1/2})O_3$  (X= Mo and W)", *Materials Chemistry and Physics*, **73**, 86-92, (2002).
8. E.J. Romans, A.J. Millar, C. Carr, **R. Palai** and C.M. Pegrum, " High-Tc single layer gradiometers: device optimisation for full portability in an unshielded environment", *Physica C*, **372-376**, 245-248, (2002).
9. K. Murali, A.N. Chatterjee, P. Saha, **R. Palai**, S. Kumar, S.K. Roy, P.K. Mishra and A. Roy Choudhary, "Direct selective laser sintering of iron-graphite powder mixture", *Journal of Materials Processing Technology*, **136**, 179-185, (2003).
10. **R. Palai**, E.J. Romans, Y.C. Fan, G.B. Donaldson and C.M. Pegrum, "Growth and characterisation of  $NdBa_2Cu_3O_{7-\delta}$  and Ca-doped  $NdBa_2Cu_3O_{7-\delta}$  thin films", *IEEE Transactions on Applied Superconductivity*, **13**, 2773-2776, (2003).
11. **R. Palai**, E.J. Romans, R.W. Martin, F.T. Docherty, Y.C. Fan, P. Maas and C.M. Pegrum, "Growth mechanism and microstructural studies of pulsed laser deposited NdYBaCuO thin films", *Institute of Physics Conference Series No. 181*, 1534-1541, (2004).
12. **R. Palai**, E.J. Romans, R.W. Martin, F.T. Docherty, P. Maas and C.M. Pegrum, "Studies of growth, microstructure, Raman spectroscopy and annealing effect of pulsed laser deposited Ca-doped NdBaCuO thin films", *Journal of Physics D: Applied Physics*, **38**, 51-61, (2005).
13. **R. Palai**, E.J. Romans, R.W. Martin, F.T. Docherty and C.M. Pegrum, "Growth mechanism, microstructure, EPMA and Raman studies of pulsed laser deposited  $Nd_{1-x}Ba_{2+x}Cu_3O_{7-\delta}$  thin films", *Physica C*, **424**, 57-71, (2005).
14. **R. Palai**, "Growth, microstructure, Raman spectroscopy and annealing effect of  $Nd_{1-x}Y_xBa_2Cu_3O_{7-\delta}$  thin films by laser ablation", *Journal of Physics D: Applied Physics*, **38**, 1190-1198, (2005).
15. Y.Y. Tse, R.I. Chakalova, M.M. Joshi, I.P. Jones, C.M. Muirhead and **R. Palai**, "Microstructural characterisation of cuprate/manganet films on (110)  $SrTiO_3$  deposited by laser ablation", *Journal of Physics: Conference Series*, **26**, 115-118, (2006).
16. H. Huhtinen, M. Peurla, M. A. Shakhov, Yu. P. Stepanov, P. Paturi, J. Raittila, **R. Palai** and R. Laiho, "Superconducting properties of films deposited from micro-, nanocrystalline and optimally BZO-doped YBCO targets", *IEEE Transactions on Applied Superconductivity*, **17**, 3620-3623 (2007).

17. M. Perula, H. Huhtinen, M. A. Shakhov, K. Traito, Yu. P. Stepanov, M. Safonchik, P. Paturi, Y.Y. Tse, **R. Palai** and R. Laiho, "Investigation of effects of nanostructure and columnar defects on flux pinning in pure and BaZrO<sub>3</sub>-doped YBa<sub>2</sub>Cu<sub>3</sub>O<sub>6+x</sub> films in fields up to 30 T", *Physical Review B*, **75**, 184524 (2007).
18. **R. Palai**, H. Huhtinen, R.M. Valdes, R. Pagan and R.S. Katiyar, "Study of Phase Transitions and Magnetoelectric Coupling of Laser Ablated BiFeO<sub>3</sub> Thin Films by Raman Scattering", *Proceeding of the 2007 16<sup>th</sup> IEEE International Symposium on Applications of Ferroelectrics*, 413-414 (2007).
19. **R. Palai**, R.S. Katiyar, H. Schmid, P. Tissot, S. J. Clark, J. Robertson, S.A.T. Redfern, G. Catalan, and, J. F. Scott, "β Phase and γ-β Metal-Insulator Transition of Multiferroic Bismuth Ferrite", *Physical Review B*, **77**, 014110, (2008)
20. X.Deng, M.Joshi, R.Chakalova, M.S.Colclough, **R.Palai**, Y.Y.Tse, I.P.Jones, H.Huhtinen, and C.M.Muirhead, " Search for spin-polarisation effects in LCMO/YBCO thin film bilayers", *Physical Review B*, **77**, 144528, (2008)
21. J.F. Scott, **R. Palai**, A. Kumar, M. K. Singh, N. M. Murari, N. K. Karan, and R. S. Katiyar "New Phase Transitions in Perovskite Oxides: BiFeO<sub>3</sub>, SrSnO<sub>3</sub>, and Pb(Fe<sub>2/3</sub>W<sub>1/3</sub>)<sub>1/2</sub>Ti<sub>1/2</sub>O<sub>3</sub>" , *Journal of American Ceramic Society*, **91**, 1762 (2008) .
22. S. K. Singh, **R. Palai**, K. Maruyama, and H. Ishiwara, " Effects of Ni Substitution on Structural, Dielectrical, and Ferroelectric Properties of Chemical-Solution-Deposited Multiferroic BiFeO<sub>3</sub> Films", *Electrochemical and Solid-State Letters*, **11**, G30, (2008)
23. R. Martinez, **R. Palai**, and R. Katiyar, " Synthesis and characterization of Pb(Fe<sub>1/2</sub>Ta<sub>1/2</sub>)O<sub>3</sub>", *Mater. Res. Soc. Symp. Proc.* **1034**, K10-48, (2008)
24. R. Thomas, D. K. Pradhan, R. E. Melgarejo, J. J. Saavedra-Arias, N. K. Karan, **R. Palai**, N. M. Murari, and R.S. Katiyar, " Metal-Ferroelectric-Insulator-Semiconductor (MFIS) Devices Based on DyScO<sub>3</sub> Buffer Layer and Bi<sub>3.25</sub>Nd<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> Ferroelectric", *ECS Transactions*, **13**, 363, (2008)
25. **R. Palai**, H. Huhtinen, J.F. Scott, and R. S. Katiyar, "Observation of spin-glass-like behavior in SrRuO<sub>3</sub> epitaxial thin Films", *Physical Review B*, **79**, 104413, 2009
26. **R. Palai**, S.K. Singh, R. Martinez, S. Pavuuny, and R.S. Katiyar, " Observation of structural Phase transition in La-doped multiferroic BiFeO<sub>3</sub> thin films", *Proc. 7<sup>th</sup> Int. Sympo. Appl. Ferroelectrics (ISAF)* (in press)
27. **R. Palai**, S. Schmid, and R.S. Katiyar, "Polarized Raman scattering and magnetic properties of ferroelectric single domain crystal and thin film", *Proc. 7<sup>th</sup> Int. Sympo. Appl. Ferroelectrics (ISAF)* (in press)
28. R. Martinez, **R. Palai**, and R.S. Katiyar, " Structural, dielectric, electrical, and ferroelectric properties of Ba<sub>1-x</sub>Sr<sub>x</sub>TiO<sub>3</sub> ceramics synthesized by different routes", *Proc. 7<sup>th</sup> Int. Sympo. Appl. Ferroelectrics (ISAF)* (in press)
29. **R. Palai**, J.F. Scott and R.S. Katiyar, "Phonon spectroscopy near phase transition temperatures in multiferroic BiFeO<sub>3</sub> epitaxial thin films", *Physical Review B*, **81**, 024115 (2010)
30. **R. Palai**, H. Schmid, J.F. Scott, and R.S. Katiyar, " Raman scattering of Single-domain multiferroic BiFeO<sub>3</sub> ", *Physical Review B*, **81**,xx (2010) (in press)
31. S. Chatterjee, P. Ganesh, **R. Palai**, J.A. Wu, R. Kaul, J.D. Majumdar, A. Roy Choudhury, "Effect of h-BN addition on the tribological behavior of nano-structured Al<sub>2</sub>O<sub>3</sub>-TiB<sub>3</sub>-TiN based coatings developed by combined SHS and laser surface alloying", *Journal of Materials Processing Technology*, (in press)
32. R. Martinez, **R. Palai**, H. huhtinen, J.F. Scott, J. Liu, and R. Katiyar, " Nanoscale ordering and Multiferroics Behaviour in Pb(Fe<sub>1/2</sub>Ta<sub>1/2</sub>)O<sub>3</sub>" *Physical Review B* ( submitted)

33. S.K. Singh, **R. Palai**, Y. Sugiyama, and H. Ishiwara, "Leakage current reduction in Sm-doped BiFeO<sub>3</sub> thin films", Appl. Phys. Lett. (submitted)

### Conference Presentations/Invited Talks

1. Seema Sharma, **Ratnakar Palai** and R.N.P. Choudhary, "Synthesis and Characterisation of some lead-based ferroelectric relaxors", *Condensed Matter Days-August 26-28, 1999*, Jadavpur University, Calcutta, India (**Invited talk**)
2. **Ratnakar Palai**, Seema Sharma and R.N.P. Choudhary, "Studies of structural, dielectric and varistor behavior of lead cadmium tungstate ceramics," *Condensed Matter Days-August 26-28, 1999*, Jadavpur University, Calcutta, India
3. E.J. Romans, A.J. Millar, C. Carr, **R. Palai** and C.M. Pegrum, "High-Tc single layer gradiometers: device optimisation for full portability in an unshielded environment. *EUCAS-2001* (European Union Conference on Applied Superconductivity) Sept, 2001 Copenhagen, Denmark
4. **Ratnakar Palai** and Pavel Broussov, "Laser ablation of high temperature superconducting thin films and SQUID gradiometers", *3rd SCENET (European Network for Superconductivity) School, Sept 22-Oct 4, 2001*, Superconducting Materials and Applications, Attika (Athens), Greece
5. **Ratnakar Palai** and Pavel Broussov, "Fabrication and testing of step-edge and Josephson junctions for use in SQUID magnetometers and gradiometers", *3rd SCENET (European Network for Superconductivity) School, Sept 22-Oct 4, 2001*, Superconducting Materials and Applications, (Athens), Greece
6. **R. Palai**, E.J. Romans, Y.C. Fan, G.B. Donaldson and C.M. Pegrum, "Growth and characterisation of NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> and Ca-doped NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> thin films", *ASC-2002 (Applied Superconductivity Conference)*, Houston, Texas, USA
7. **R. Palai**, E.J. Romans, R.W. Martin, F.T. Docherty, Y.C. Fan, P. Maas and C.M. Pegrum, "Growth mechanism and microstructural studies of pulsed laser deposited NdYBaCuO thin films", *EUCAS -2003 (European Conference on Applied Superconductivity)*, Sorrento, Italy
8. **R. Palai**, H. Huhtinen, R. Chakalova, C. Muirhead and T. Jackson, "Growth and characterisation of pulsed laser deposited NBCO thin films for spintronics device applications", *ISSSE -2005 (International Summer School on Superconductive Electronics)*, June-25-July 8, Il Coicco, Pisa, Italy
9. R.S. Katiyar, S.R. Das, **R. Palai**, P.S. Dobal, P. Bhattacharya, C. Rettori, "Enhancement of electrical and magnetic properties of BiFeO<sub>3</sub> multiferroics", XV International Research Congress-2006, Cancun, Mexico, August 23-28, 2006 (**Invited Talk**)
10. **R. Palai**, S.R. Das and R.S. Katiyar, "Enhancement of electrical and magnetic properties of rare earth doped BiFeO<sub>3</sub> multiferroics thin films", MRS Fall Meeting 26th Nov- 1<sup>st</sup> Dec 2006, Boston, USA
11. **R. Palai**, R. Chakalova, H. Huhtinen, C.M. Muirhead and R.S. Katiyar, "Growth and characterization of pulsed laser deposited La<sub>2/3</sub>Ca<sub>1/3</sub>MnO<sub>3</sub> thin films on different (110) substrates", MRS Fall Meeting 26th Nov- 1<sup>st</sup> Dec 2006, Boston, USA
12. R.S. Katiyar, **R. Palai**, and M.K. Singh, "Phase transition and spin-phonon coupling studies in BiFeO<sub>3</sub> thin films probed by Raman spectroscopy," ISIF, Bordeaux, France, May 7-11, 2007 (**Invited Talk**)
13. **R. Palai**, H. Huhtinen, R.M. Valdes, R. Pagan and R.S. Katiyar, "Dynamics of Phase transition and spin-phonon coupling in multiferroic BiFeO<sub>3</sub> thin films probed by Raman spectroscopy", *16<sup>th</sup> IEEE International Symposium on Applied Ferroelectrics (ISAF)*, Nara, Japan, May 27-31, 2007
14. *Nianhua Peng, C Jeynes, R M Gwilliam, K J Kirkby, R P Webb and R Palai*, "Heavy ion doping in superconducting YBCO thin films by ion beam implantation", *ASC-2007 (Applied Superconductivity Conference)*, Seattle, USA

15. Y Deng, **R Palai**, M.S. Colclough, R Tchakalova, C.M. Muirhead and H Huhtinen, "Electronic properties of YBCO thin films grown with c-axis in plane", *ASC-2007 (Applied Superconductivity Conference)*, Seattle, USA
16. R.S. Katiyar, M.K. Singh, and **R. Palai**, "Phase transition studies in epitaxially grown BiFeO<sub>3</sub> thin films by Raman spectroscopy", MS & T, Detroit, USA, September 16-20, 2007 (**Invited Talk**)
17. **R. Palai**, H. Huhtinen, R.M. Valdes, R. Pagan and R.S. Katiyar, "Magnetic properties of BFO-SRO heterostructures", MRS Fall Meeting 26th Nov- 1<sup>st</sup> Dec 2007, Boston, USA
18. **R. Palai**, R.S. Katiyar, and J.F. Scott, "The  $\beta$ -phase of multiferroic bismuth ferrite" MRS Fall Meeting 26th Nov- 1<sup>st</sup> Dec 2007, Boston, USA
19. **R. Palai**, S.K. Singh, R. Martinez, S. Pavuuny, and R.S. Katiyar, " Observation of structural Phase transition in La-doped multiferroic BiFeO<sub>3</sub> thin films", *International Symposium on Applied Ferroelectrics (ISAF)*, Feb 24-27, 2008, Santa Fe, USA, 2008
20. **R. Palai**, S. Schmid, and R.S. Katiyar, "Polarized Raman scattering and magnetic properties of ferroelectric single domain crystal and thin film", *International Symposium on Applied Ferroelectrics (ISAF)*, Feb 24-27, 2008, Santa Fe, USA, 2008
21. R. Martinez, **R. Palai**, and R.S. Katiyar, "Structural, dielectric, electrical, and ferroelectric properties of Ba<sub>1-x</sub>Sr<sub>x</sub>TiO<sub>3</sub> ceramics synthesized by different routes", International Symposium on Applied Ferroelectrics (ISAF), Feb 24-27, 2008, Santa Fe, USA, 2008. (Received "**Best Poster Award**")
22. **R. Palai**, "Dynamics of phase transition and phonon-magnon coupling in multiferroic BiFeO<sub>3</sub>", Nebraska Center for Materials and Nanoscience/NSF-Materials Research Science and engineering Center (MRSEC)", University of Nebraska, Lincoln, NE, USA , 16<sup>th</sup> Feb. 2009 (**Invited talk**)
23. Shojan P., R. Martinez, **R. Palai**, R. Calsada and R.S. Katiyar "Magneto-electrical properties of La<sub>2/3</sub>Sr<sub>1/3</sub>MnO<sub>3</sub>/BiFeO<sub>3</sub> Heterostructures" Materials Research Society (MRS), Fall Meeting 1-5 December 2008.
24. R. Martinez, Shojan P., R. Calsada, **R. Palai**, and R.S. Katiyar Magnetolectric Properties of Pulsed Laser Deposited Ferroelectric/Ferromagnetic Heterostructures Materials Research Society (MRS), Fall Meeting 1-5 December 2008.
25. **R. Palai**, "GaN-based Semiconductor Nanostructures for Optoelectronics and Spintronics Applications", Nebraska Center for Materials and Nanoscience/NSF-Materials Research Science and engineering Center (MRSEC), University of Nebraska, Lincoln, NE, USA , 16<sup>th</sup> Feb. 2009 (**Invited talk**)
26. R. Martínez, R. Palai, and R.S. Katiyar " Microstructural and Magneto-electric Properties of Pulsed Laser Deposited Ferroelectric/Ferromagnetic Heterostructures" Materials Research Society (MRS) Fall meeting 2009
27. R. Martínez V, A. Kumar, R. Palai, and R.S. Katiyar "*Dielectric and relaxor behavior properties of PbFe<sub>1/2</sub>Ta<sub>1/2</sub>O<sub>3</sub> thin films grown on (100) oriented MgO substrate by pulsed laser deposition*" Materials Research Society (MRS) Fall meeting 2009
28. J. Wu, M. Rodriguez, A. Rivera, and **R. Palai**, "Al<sub>1-x</sub>Ga<sub>x</sub>N Epitaxial Columnar Nanostructures" Materials Research Society (MRS) Fall meeting 2009
29. J. Wu, M. Rodriguez, A. Rivera, and **R. Palai**, "Room Temperature Ferromagnetic behavior in Yb-doped GaN Semiconductor" Materials Research Society (MRS) Fall meeting 2009 (**Nominated for the Best Poster Award**)