# Ranjith Ramadurai

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## Objective

To explore new research area and to have an interesting research career with a wide task and variety that will provide excellent opportunities to learn new scientific facts and will bridge science with social welfare.

## Work experience

**1st Nov 2011 – upto date** — **Assistant Professor,**
Department of Materials Science & Metallurgical Engineering,
Indian Institute of Technology Hyderabad

**23rd May 2011 – 30th Oct 2011** — **Visiting Asst. Professor,**
Department of Materials Science & Metallurgical Engineering,
Indian Institute of Technology Hyderabad

## Post-Doctoral Research

**May 2009 – April 2011** — **Alexander Von Humboldt Fellow**
Institute of Electronic Materials and Devices,
Leibniz University of Hannover. (Fabrication and studies of Silicon well Resonant Tunnel diodes)

**Dec 2006 – April 2009** — **Post-doctoral Fellow (CNRS)**
Laboratoire CRISMAT, Ensi-CAEN, France.
(**MACOMUFI** – Manipulating the coupling in multiferroic thin films, EU specific targeted research project)

## Education

**Aug 2001 – April 2007** — **Research Scholar (Ph.D)**
Materials Research Center,
Indian Institute of Science, Bangalore, India

**Aug 1999 - May 2001** — **Master of Science in Materials Science**,
CEG Campus, Anna University, Chennai, India

**July 1996 - April 1999** — **Undergraduate in Physics**,
**First class (78%),**
Sri Pushpam College, Poondi
(Affiliated to Barathidasan University, Thiruchirapalli, India)

## Research activities after joining IIT Hyderabad (May 2011 onwards)

### Awards and Honors

1. **"MRSI – Medal"** Materials Research Society of India (MRSI) – Medal for young Materials Researcher for the year 2016.
2. **"DAE-BRNS – Young scientist research award"** with research grant starting from **May 2014** for a duration of 36 months.
3. "**Alexander Von Humboldt" - Renewed Research stay to senior researchers** for a duration of 3 months (**May 2014 to July 2014**)
4. "**Excellence in Teaching Award"** for the year **2013** in Indian Institute of Technology Hyderabad. An award given based on the closed feedback of the students.

### Awards and Honors by group members

1. Mr. Bandi Mallesham, received the **"The Ludo Frevel Crystallography Scholarship"** from International centre for Diffraction Data (ICDD). He was the only Indian among the 10 awardees round the globe for the year 2016. http://www.icdd.com/resources/awards/frevelwinner.htm
2. **"Best Poster Award" - Mr. Sajmohan,** received the Best Poster award in the Second International Conference on Nanostructured Materials and Nanocomposites (ICNM 2014) to be held on **19-21 December 2014**, Kottayam, Kerala, India
3. **"Second Best Poster Award"-Mr. Venkateswara rao** received the second best poster award in Second International Conference on Nanostructured Materials and Nanocomposites (ICNM 2014) to be held on **19-21 December 2014**, Kottayam, Kerala, India

### Funded Research Projects

1. "Investigations on Influence of Cationic Ordering, Anisotropy and Strain in Functional Domains of Multiferroic Relaxor Thin Films and Bulk ceramics for Magneto-Dielectric based Device Applications" – **DST, Fast track project Nov 2013 – Oct 2016 (36 months).(INR~ 17 Lakhs)**

**2.** "Effect of anisotropy on exchange bias of multiferroic oxides with modulated spin structures for novel magnetic field sensor applications" – **DAE, BRNS- young scientist research award, May 2014 – April 2017 (36 months). (INR~ 16 Lakhs)**

### Funded Research Projects under review

1. **Principal Investigator -** "Synthesis of novel multifunctional nano-composites and study the influence of size, shape, strain and organization on functional behavior at nano-scale for magneto-dielectric device applications", **DRDO-ERIPR** program **final phase evaluation** under progress. **(INR~ 48.8 Lakhs)**

2. **Co – Principal Investigator** – **IMPRINT** Project "7138F titled Nature Enabled Eco-friendly Next Generation Electronics for 24x7 Surveillance and Monitoring for Defense Applications" – under **Third phase of evaluation**.

### Institute projects: Participation / Co-ordinated

1. Participation in DISANET an Indo-Japan collaborative initiative – It was then (2012) an ongoing institute project, in which I took part and setup a thin film laboratory for sensor materials development.

2. Co-ordinated the theme proposing for "**Center for New Materials/Chemical Process**" for funding under BUILDING INDUSTRIAL RESEARCH & DEVELOPMENT AND COMMON RESEARCH FACILITIES (BIRD-CRF) Scheme – **submitted in April 2016**.

## Research students supervision

**Mr. Bandi Mallesham** submitted **PhD thesis on 19th August 2016** entitled "Structure, Cation ordering and Phonon studies of $Pb(Fe_{0.5-x}Sc_xNb_{0.5})O_3$, a multiferroic relaxor: Bulk and Thin Films"

## Research Facilities built @ IITH with institute / project funds

1. Physical property measurement system, Quantum Design, (model: Dynacool)
2. Electron beam / thermal evaporation unit, (HHV)
3. High Resolution Thin Film X-ray Diffraction unit (Bruker D8-Discover)
4. Pulsed laser ablation laboratory under the Institute initiative of DISANET Project (Indo-Japan collaborative project)
5. Procurement and maintenance of Ultrasonic disc cutter unit
6. Procurement and maintenance of Low and high temperature electrical probe unit (DAE_BRNS-YSRA scheme)
7. Procurement and maintenance of PLD chamber for lead based compounds (DST –FAST TRACK)

## Invited talks: International / National conferences

1. **"Invited Talk"** – "Influence of surface modification on valence band offset formation of ultra-thin Gd2O3 layers deposited on p-Si(111) wafers by molecular beam epitaxy" – International Conference on Thin Films and Applications (ICTFA-2012) **15-17 March 2012** – SASTRA university, Thanjavur, Tamil Nadu

2. **"Invited Talk"** – "Recent Advances in multiferroic relaxors: Bulk and Thin films" – National Conference on Condensed Matter Physics and Applications (CMPA-2012) **Dec 2012.** – Manipal Institute of Technology, Manipal, Karnataka

3. **"Invited Talk"** – "Nano Scale Control on Electrical Transport and Low Power Ovonic Threshold Switching Characteristics of GeTe6 Thin Films using Conductive - Atomic Force Microscope" - Second International Conference on Nanostructured Materials and Nanocomposites (ICNM 2014) to be held on **19-21 December 2014**, Kottayam, Kerala, India.

## Workshops/conferences: coordinated/organized/Co-chaired

1. **ICCMS** – "Fourth International Congress on Computational Mechanics and Simulation"– Dec2012, part of the organizing committee and convenor of theme : "Computational Materials Science"
2. Part of organizing committee and delivered a Lecture on "Photoelectron Spectroscopy" in the **MSME Departmental TEQIP** workshop on "Advanced Materials Characterization Techniques" – Nov 2012
3. **Co-ordinated and Conducted** TEQIP workshop on "Advanced X-ray Diffraction Studies: Bulk and Thin films" – 4th to 9th July 2016
4. **Organizing Secretary** of "National Conference on Emerging Materials (CEMAT-2016)" 18-19 July 2016, IISc Bangalore.
5. **Co-chair – "Ferroics"** theme in the "International Conference of Young Researchers on Advanced Materials" (**IUMRS-ICYRAM 2016**), **11-15 Dec 2016**, IISc Bangalore.

## Collaboration: National / International

1. Prof. Hidekazu Tanaka, Osaka university, Japan
2. Dr. Wilfrid Prellier, Laboratory of CRISMAT, France
3. IISc, Bangalore
4. IIT Indore, Indore
5. DMRL, Hyderabad
6. NAL, Bangalore
7. IIT Mandi, Himachal Pradesh

## Prototypes Developed

1. Gas sensor prototype
2. Lead free piezoelectric based vibration sensor

## List of publications after joining IITH

### Books / Chapters

**Chapter 10-"Piezoelectrics and multifunctional composites" – Dr. Ranjith Ramdurai** and Dr. Vijaynandhini Kannan – "in a book titled "Perovskites and Related Mixed Oxides" Ed. By P. Granger, V.I. Parvulescu, S. Kaliaguine and W. Prellier – Volume I, Wiley-VCH, (2015).

### Research works published in peer reviewed international journals

**Format:** (Authors, Title, journal, **volume**, page, **year**)

1. "Tunable Ferroelectric domain orientation in polycrystalline and highly oriented $Na_{0.5}Bi_{0.5}TiO_3$ thin films", Kumaraswamy Miriyala and **Ranjith Ramadurai**, **Materials Letters, 178,** 23-26 **(2016)**

2. "A phase-field study of domain dynamics in ferroelectric BCT-BZT system"Soumya Bandyopadhyay, Tushar Jogi, Kumaraswamy Miriyala, Ranjith Ramadurai and Saswata Bhattacharyya **MRS Advances** June 2016, pp 1 - 6 **DOI: 10.1557/adv.2016.384, 23 May 2016**

3. "Microstructural influence on piezoresponse and leakage current behavior of oriented $Na_{0.5}Bi_{0.5}TiO_3$ thin films", Kumaraswamy Miriyala and **Ranjith Ramadurai**, **MRS Advances**, May **2016**, http://dx.doi.org/10.1557/adv.2016.350

4. "Studies on Local Structural Inhomogeneity and Origin of Ferroelectricity in Yttrium chromite Ceramics" , Venkateswara rao Manepalli and **Ranjith Ramadurai**, **MRS Advances, March 2016 - http://dx.doi.org/10.1557/adv.2016.222**

5. "Investigations on Dielectric phase transition behavior of Pb(Fe0.5-xScx)Nb0.5O3 Multiferroic Ceramics" , Bandi Mallesham and **Ranjith Ramadurai**, **MRS Advances, Feb 2016 http://dx.doi.org/10.1557/adv.2016.145**

6. "Effect of Crystal Structure and Cationic Order on Phonon Modes across Ferroelectric Phase Transformation in Pb(Fe0.5-xScxNb0.5)O3 Bulk Ceramics" B. Mallesham, B. Viswanath and **R. Ranjith**, **AIP Advances**, **6**, 015116 **(2016)**

7. E. Bruyer, A. Sayede, A. Ferri, R. Desfeux, R.V.K. Mangalam, **R. Ranjith**, W. Prellier Insight on the ferroelectric properties in a $(BiFeO_3)_2(SrTiO_3)_4$ superlattice from experiment and ab initio calculations **Applied Physics Letters 107, 042904 (2015)**

8. Anbarasu Manivannan, Santhosh Kumar Miana, Kumaraswamy Miriyala, Smriti Sahu & **Ranjith Ramadurai, "**Low power threshold switching characteristics of thin $GeTe_6$ films using conductive atomic force microscopy," **Appl. Phys. Lett., 105,** 243501 **(2014)**

9. B. Mallesham**, R.Ranjith** & M.Manivelraja**, "**Scandium induced structural transformation and B:B cationic ordering in $Pb(Fe_{0.5}Nb_{0.5})O_3$ multiferroic ceramics", **Journal of Appl. Phys.,116,** 034104 **(2014)**.

10. T.Durga Rao, **R.Ranjith** & Saket Asthana, **"**Enhanced magnetization and improved insulating character in Eu substituted BiFeO3", **Journal of Appl. Phys**., **115**, 124110 **(2014)**

11. Karthik Thangavelu, **Ranjith Ramadurai** & Saket Asthana, Evidence for the suppression of intermediate anti-ferroelectric ordering and observation of hardening mechanism in $Na_{1/2}Bi_{1/2}TiO_3$ ceramics through Cobalt substitution", **AIP Advances**, **4**, 017110 (**2014**)

12. Chatla Naga Babu, Paladugu Suresh, Prasenjit Das, Arruri Sathyanarayana, **Ranjith Ramadurai**, Natarajan Sampath and Ganesan Prabusankar, **Journal of Molecular Structure**, **1062,** 141-146 **(2014).**

## Research work presented by students in International /National - conferences

1. Kumaraswamy Miriyala**,** R. Ranjith, Deshpande,A.S "Role of surface defects on optical absorptional features of BiFeO3 nano particles", **2nd International Conference on Advanced Functional Materials (ICAFM), Thiruvananthapuram, Kerala, India, February 19-21,2014.** (**Poster Presentation**)
2. Kumaraswamy Miriyala, Ranjith Ramadurai "Microstructural influence on piezoresponse and leakage current behavior of Na0.5Bi0.5TiO3 Thin Films**", 2016 MRS Spring Meeting & Exhibit held at Phoenix, Arizona, March 28-April 1, 2016.** (**Poster Presentation**)
3. Kumaraswamy Miriyala, R. Ranjith, "Microstructural tuning and its influence on the piezoelectric properties of Sodium Bismuth Titanate thin films, a lead free piezoelectric grown by pulsed laser deposition", **National Conference on Emerging materials (CEMAT-2016) , IISC Bangalore, India, July 18-19 2016.** (**Poster Presentation**)
4. B. Mallesham and R. Ranjith "Investigation of dielectric phase transtion behavior of $Pb(Fe_{0.5-x}Sc_xNb_{0.5})O_3$ multiferroic ceramics" **2015 MRS Fall meeting and Exhibit, Boston, Massachusetts, USA. 29th Nov 2015 – 4th Dec 2015. [poster presentation]**
5. B. Mallesham **and** R. Ranjith, "Structure induced cation ordering in $Pb(Fe,Sc)O_3$: a multifunctional piezo ceramic" **18th International Workshop on The Phyics of Semicoductors Devices, (18th IWPSD), IISc , Banglore, India, 7th Dec-10 th dec, 2015 [poster presentation]**
6. B Mallesham and R. Ranjith, "Structural and Piezoresponse Studies of Polycrystalline and Epitaxial Thin films of Multiferroic $Pb(Fe_{0.5}Nb_{0.5})O_3$", **Conference on Emerging materials (CEMAT-2016), IISC Bangalore, India, 18th july – 19th july, 2016 [poster presentation]**
7. B. Mallesham, R. Ranjith, M. Manivel Raja, "Effect of Sc Substitution on Local ordering, Ferroelectric phase transition temperature ($T_{max}$) of $Pb(Fe_{0.5}Nb_{0.5})O_3$ multiferroic relaxors" **2nd International Conference on Advanced Functional Materials (ICAFM- 2014), Thiruvananthapuram, Kerala (India), February 19-21, 2014**
8. Vasundhara G, Swapnil ghodke, B. Mallesham and R. Ranjith, "Enhancement of relaxor features in $Na_{0.5}Bi_{0.5}TiO_3$ a lead free piezo-ceramic", **2nd International Conference on Advanced Functional Materials (ICAFM-2014), Thiruvananthapuram, Kerala (India), February 19-21, 2014**
9. Swapnil C Ghodke, Akkisetty Bhaskar & Ranjith R, "Piezoelectric Polymer/Ceramic composite for sensor applications", **Oral Presentation** in International conference on **Advancements in Polymer Materials,** APM 2013, **01-03 March 2013**

## Academic and Institute activities after joining IIT Hyderabad (May 2011 onwards)

### Teaching @ IITH

- MS5010 - Properties of Materials (3 credits) (for M.Tech/PhD in Matl. Sci & Met. Engg)
- MS 5080-Thin Film Technology (3 credits) (for M.Tech/PhD in Matl. Sci & Met. Engg)
- MS1050-Physics of Solids (1 credit) (for B.Tech in MSME and Engineering Science)
- MS2090-Electronic Materials (1 credit) (for B.Tech in MSME and Engineering Science)
- MS 1080-Semiconductor Materials (1 credit) (for B.Tech in MSME)

### Teaching Learning Center: projects @ IITH

1. Built a table top model of four circle goniometer – for teaching x-ray diffraction of thin films (ongoing)
2. Built a table top model of Atomic Force microscope – for teaching scanning probe microscopy (ongoing)

### Title of dissertations submitted by M.Tech students

1. "Electrical Transport properties of amorphous $Ge_{15}Te_{85}$ thin films using scanning probe microscopy for phase change memory applications" by **Santhoshkumar. M, July 2013**

**2.** Fabrication and Studies of Organic-Inorganic Hybrid Composites for Piezoelectric Based Vibration Sensors" by **Swapnil Chetan Ghodke, July 2013**

3. "Studies on Structural and Physical Properties of Zr Substituted $Na_{0.5}Bi_{0.5}TiO_3$ and $Na_{0.5}Bi_{0.5}TiO_3$ – $BaTiO_3$ Solid Solution for Vibration Sensor Applications" – **G. Vasundhara M.Tech Thesis** submitted in **July 2014**

4. "Fabrication of Epitaxial Thin Films and Structural Studies of $(Ba_{0.85}Ca_{0.15})(Zr_{0.10}Ti_{0.90})O_3$ a Lead Free Piezoelectric by Pulsed Laser Ablation"– **Mudit Upadhyay – M.Tech Thesis** submitted in July 2015

5. "Studies on attaining $0.5(Ba_{0.7}Ca_{0.3}TiO_3)$ - $0.5(BaZr_{0.2}Ti_{0.8}O_3)$ morphotrophic composition through multilayer approach" – **Soumen Mandi - M.Tech Thesis** submitted in July 2016

### Students cultural and sci-tech activties @ IITH

1. **Associate chairman**, Students Cultural Activities, IITHyderabad, starting from **17 May 2013 to 08 Oct 2015**
2. **Chairman**, Students Cultural Activities, IITHyderabad, from **09 Oct 2015 – upto date**.
3. **Coordinator – Mini projects** as a part of orientation of fresh students for three years 2011-13.

## Research activities prior to joining IIT Hyderabad (until May 2011)

### Awards and Honors

1. Recipient of **"Alexander Von Humboldt"** Fellowship for a period of 01May 2009 - 30April 2011.
2. **Gold Medal** and **Jayashree Shyam Sundar Endowment** for standing **first** in the first two semesters in M.Sc.

### Lindau Meeting of Nobel Laureates

Selected and nominated by **Division of Chemical Sciences, Indian Institute of Science**, Bangalore and **Corporate Technology, SIEMENS, Munich** to attend the 56$^{th}$ Lindau Meeting of Noble Laureates in Chemistry as a SIEMENS nominee from 25$^{th}$ June 2006 to 30$^{th}$ June 2006.

### Research Interests

- Fabrication of multiferroic oxide thin films for fundamental science and functional device applications.
- Fabrication of high-k dielectric thin films for CMOS technology and memory device applications
- Surfaces and Interfaces of multiferroic oxide thin films and high-k dielectric thin films on silicon and single crystalline oxide substrates
- Influence of process conditions, strain engineering and interface engineering on domains and domain dynamics of multiferroic thin films utilizing scanning probe microscope.

## Research Experience

**Alexander Von Humboldt Fellow** **May 2009 – April 2010**
**(Institute of Electronic Materials and Devices, Leibniz University of Hannover, Germany)**

- Fabrication of epitaxial $Gd_2O_3$ thin films on Silicon (001)&(111) wafers using Molecular Beam Epitaxy for high-k applications.
- Influencing of processing, thickness and the interface trap densities on the dielectric and leakage characteristics of high-k dielectric thin films.
- Fabrication of epitaxial Silicon quantum well sandwiched between $Gd_2O_3$ barriers on Silicon (001)&(111) for resonant tunnel diode applications.

**Post Doctoral Fellow** **Dec 2006 – April 2009**
**(Lab. CRISMAT, Caen, France)**

- Fabrication of epitaxial multiferroic superlattice structures ($BiFeO_3$, $BiCrO_3$) on single crystalline oxide substrates using pulsed laser ablation technique.
- Fabrication of $BiFeO_3$/($BaTiO_3$,$SrTiO_3$) superlattice structures and analysis of Ferroelectric and piezoelectric domains using scanning probe microscopy.

- Fabrication of epitaxial Ferroelectric and Ferromagnetic composites for multiferroic applications.

- Fabrication of epitaxial thin films of various multiferroic systems for magneto dielectric applications ($LaBiMn_{4/3}Co_{2/3}O_{6+\delta}$).

- Magneto-dielectric and polarization measurements of various bulk ceramic magnetic perovskites (La,Bi)(Mn,X)$O_3$, (X=Ni, Co and Fe).

**Graduate Student Researcher** **Aug 2001 – Nov 2006**
**(Indian Institute of Science, Bangalore, India)**
**Doctoral Thesis Title**: "Multilayers and Artificial Superlattices of Lead Magnesium Niobate-Lead Titanate based relaxors"

**Research Work during Masters Program (M.Sc)** **Jan 2001 - May 2001**
**(Indira Gandhi Center for Atomic Research (IGCAR), Kalpakkam, India)**

"Characterization of Nickel-Germanium Diffusion couple using SIMS".

**Summer Training Program** **May 2000 – July 2000**
**(Tata Institute of Fundamental Research (TIFR), Mumbai, India)**
Selected for the Visiting Student Research Program (VSRP-2000) conducted by TIFR for two months. A research project on laser ablation of $La_{0.7}Ce_{0.3}MnO_3$ thin films was submitted at the end of the program. Simultaneously, worked on CMR studies on Glass composites of $La_{0.7}Sr_{0.3}MnO_3$.

## List of publication before joining IITH

### Research works published in peer reviewed international journals

**Format:** (Authors, Title, journal, **volume**, page, **year**)

1. Ke Xu, **Ramadurai Ranjith**, Apurba Laha, Harish Pala, Andrian P Milanov, Roland A. Fischer, Eberhard Bugiel, Jurgen Feydt, Stefan Irsen, Teodar Toader, Claudia Bock, Detlef Rogalla, H.J. Osten, Ulrich Kunze and Anjana Devi, " Atomic Layer Deposition of $Gd_2O_3$ and $Dy_2O_3$: A study of the ALD characteristics and structural and electrical properties", **Chem. Mater., 24**, 651-658 (**2012**)

2. J. Oliveira, J. Agostinho Moreira, A. Almeida, M. R. Chaves, J. M. M. da Silva, J. B. Oliveira, M. A. S´a, P. B. Tavares, **R. Ranjith**, and W. Prellier, "Phase diagram of the orthorhombic, lightly lutetium doped $EuMnO_3$ magnetoelectric system", **Phys. Rev. B**., **84**, 094414 (**2011**)

3. **R.Ranjith**, A.Laha, E.Bugiel, H.J Osten, K.Xu, A. Milanov and Anjana Devi, " Down scaling of defected passivated $Gd_2O_3$ thin films on p-Si(001) wafers by $H_2O$ assisted atomic layer deposition" **Semi. Sci. & Tech**., **25** 105001**(2010).**

4. Z. Zhang, **R. Ranjith**, W. Prellier, B. Xie, Y. Zhao,L.M Wong, S. Wang, J. Wang,and T. Wu, " Enhanced low field magnetoresistance in $La_{0.7}Sr_{0.3}MnO_3$ nanocrystal/MgO nanotube composites", **Applied Physics Letters, 96** 222501/1 – 222501/3 (**2010**).

5. **R.Ranjith**, U.Lüders and W.Prellier, "Multiferroic studies on $(BiFeO_3)_m(BaTiO_3)_n$ superlattices", **J. Phys. Chem. Of Solids, 71** 1140-1143 (**2010**).

6. J.Agostinho Moreira, A. Almeida, W.S.Ferreira, M.R.Chaves, S.M.F. Vilela, P.B. Tavares, B.Kundys, **R.Ranjith** and W.Prellier, " Effect of the external fields on the polar and dielectric properties of $Eu_{0.8}Y_{0.2}MnO_3$" **Journal of Applied Physics**, **107**, 024108/1 - 024108/7 **(2010)**

7. **R.Ranjith**, Ph.Boullay, A.David, R.V.K. Mangalam, M.B. Lepetit, U.Luders, W.Prellier, A.da Casto, A. Ferri, R.Desfeux, Gy.Vincze , Zs.Radi and C. Aruta, "Constrained Ferroelectric domain orientation in $BiFeO_3$-$SrTiO_3$ heterostructures", **Applied Physics Letters**, **96,** 022902/1 - 022902/3 (**2010**).

8. Andrian P.Milanov, Ke Xu, Apurba Laha, E.Bugiel, **R.Ranjith**, D.Schwendt, H.J.Osten, Haris Parala, R.A.Fischer and Anjana Devi., " Achieving high quality $Gd_2O_3$ thin films with sharp and abrupt interface on Si(100) by $H_2O$ assisted atomic layer deposition", **J.Amer.Chem.Soc., 132,** 36 - 37(**2010**).

9. Apurba Laha, E.Bugiel, M. Jestremski, **R.Ranjith**, A. Fissel and H.J.Osten, "Encapsulated solid phase epitaxy of Ge quantum well embedded into epitaxial rare earth oxide", **Nanotechnology, 20,** 475604/1 - 475604/7 (**2009**).

10. J.A. Moreira, A. Almeida, W.S. Ferreira, M.R.Chaves, B.Kundys, **R.Ranjith,** W.Prellier, S.M.F. Vilela and P.B. Tavares, "Polar properties of $Eu_{0.6}Y_{0.4}MnO_3$ ceramics and their magnetic field dependence", **Journal of physics: Cond matt**, **21**, 446002/1 - 446002/10 (**2009**)

11. **R.Ranjith**, U.Luders, W.Prellier, A.Da Costa, Ida Dupont and R. Desfeux, "Local Probing of the ferroelectricity in $BiFeO_3$ thin films and $(BiFeO_3)_m(SrTiO_3)_m$ superlattices", **JMMM, 321,** 1710 - 1713 (**2009**).

12. Mahua das, **R.Ranjith**, C.Bittencourt, S.B. Krupanidhi, J.J. Pireaux and S.A.Shivashankar, "Assembly of sol-gel-grown $Li_xCoO_2$ nanocrystals through electromagnetic irradiation", **Applied Physics – A**, **95**, 523 - 536 (**2008**).

13. Asish K Kundu, **R.Ranjith**, B.Kundys, N.Nguyen, V.Caignaert, V.Pralong, W.Prellier and B.Raveau , "A Multiferroic ceramic with perovksite structure: $(La_{0.5}Bi_{0.5})(Mn_{0.5}Fe_{0.5})O_{3.09}$" **Applied Physics Letters, 93,** 052906/1 - 052906/1 (**2008**).

14. Asish K. Kundu, **R.Ranjith**, V.Pralong, V.Caignaert and B. Raveau, "Magneto-transport and Magneto-dielectric effect in Bi-based Perovskite Manganite" **Journal of Material Chemistry, 18,** 4280 - 4285 (**2008**).

15. **R.Ranjith**, J.Cheah, J.Wang, W.Prellier and T.Wu, "dc Leakage behavior and conduction mechanism in $(BiFeO_3)_m(SrTiO_3)_m$ superlattices", **Applied Physics Letters, 92,** 232905/1 - 232905/3 (**2008**).

16. M. Filippi, B. Kundys, **R. Ranjith**, A. Kundu, and W. Prellier, "Interfacial Contribution to the dielectric response in semiconducting $LaBiMn_{4/3}Co_{2/3}O_6$", **Applied Physics Letters, 92,** 212905/1 - 212905/3 (**2008**).

17. **R.Ranjith**, Asis Kundu, M.Filippi, B.Kundys, W.Prellier, B.Raveau, J. Laverdiere, M.P.Singh and S.Jandl, "Ferromagnetic and Magneto-dielectric studies in ferromagnetic insulating

$LaBiMn_{4/3}Co_{2/3}O_6$ epitaxial thin films", **Applied Physics Letters, 92,** 062909/1 - 062909/3 (**2008**).

18. **R. Ranjith**, B. Kundys and W. Prellier, "Periodicity-dependence of the ferroelectric properties in $BiFeO_3/SrTiO_3$ multiferroic superlattices", **Applied Physics Letters, 91,** 222904/1 - 222904/3 (**2007**).

19. **R.Ranjith** and S.B.Krupanidhi, "Antiferroelectric like polarization behavior in compositionally varying (1-x)$Pb(Mg_{1/3}Nb_{2/3})O_3$ – (x) $PbTiO_3$ multilayers", **Applied Physics Letters**, **91**, 082907/1 - 082907/3 (**2007**).

20. Asis Sarkar, **R.Ranjith** and S.B.Krupanidhi, "Non linear dielectric behavior in three-component ferroelectric superlattices", **Journal of Applied Physics, 102,** 024108/1 - 024108/6 (**2007**).

21. Ayan Roychaudri, **R.Ranjith**, S.B.Krupanidhi, R.V.K Mangalam, A.Sundaresan, S.Majumdar and S.K.Ray, "Realization of biferroic properties in $La_{0.6}Sr_{0.4}MnO_3/0.7Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.3PbTiO_3$ epitaxial superlattices", **Journal of Applied Physics**, **101**, 114104/1 - 114104/9 (**2007**).

22. **R.Ranjith**, Ayan Roychaudri, P.Victor and S.B.Krupanidhi, "Role of a template layer over phase formation, microstructure and polarization behavior of a ferroelectric relaxor thin film over platinum substrates", **Journal of Applied Physics, 101,** 104111/1 - 104111/9 (**2007**).

23. Ayan Roychaudri, **R.Ranjith**, S.B.Krupanidhi, R.V.K Mangalam and A.Sundaresan, "Interface dominated biferroic $La_{0.6}Sr_{0.4}MnO_3/0.7Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.3PbTiO_3$ epitaxial superlattices", **Applied Physics Letters**, **90**, 122902/1 - 122902/3 (**2007**).

24. **R.Ranjith**, R.Nikhil and S.B.Krupanidhi, "Interfacial Coupling and their Size Dependence on $PbTiO_3$ – $PbMg_{1/3}Nb_{2/3}O_3$ Multilayers", **Phys. Rev.B**, **74**, 184104/1 - 184104/10 (**2006**).

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## Research work presented in International /National - conferences

1. Poster presentation on "Growth and studies of ultra thin $Gd_2O_3$ layers and $Gd_2O_3/Si/Gd_2O_3$ stacking on p-Si(111) wafers by molecular beam epitaxy for resonant tunnel diode applications" **R.Ranjith**, A. Laha, E.Bugiel and H.J. Osten, in **MBE2010** an international conference at Berlin **22 – 26th August 2010**.

2. An **Oral presentation** on "Ferroelectric and scanning probe studies on $BiFeO_3$ and $(BiFeO_3)_m(SrTiO_3)_m$ superlattice structures fabricated by pulsed laser ablation" **R.Ranjith**, W.Prellier, A.De Costa, Ida Dupont and Rachel Desfeux, in **"E-MRS 2008"** an International conference conducted by **European Materials Research Society** at Strasbourg, France. **26th– 30th May 2008**.

3. An **Oral presentation** on "Magneto Capacitance/Magneto dielectric studies on LaBi(Mn(Co/Ni))O6 type perovskites", M.Filippi, B.Kundys, **R.Ranjith**, A.K.Kundu and W. Prellier, in **"E-MRS 2008"** International conference held by **European Materials Research Society** at Strasbourg, France. **26th – 30th May 2008**.

## Research work presented in National - conferences

1. An **Oral** Presentation on *"Polarization studies on PT-PMN superlattices"* on a **National Conference on Materials Science (NCMS 2006)** held at Periyar University, Salem on 16 – 17th Feb 2006.

1. *"Size dependent Ferro electric and Antiferroelectric coupling in compositionally varying PMNPT multilayers"*. **R.Ranjith**, Asis Sarkar and S.B.Krupanidhi, **poster presentation** at Functional Meta Materials at Nano Scale – 2005 (**FMN-2005**).

2. An **Invited talk** on *"Pulsed laser ablation grown relaxor based bilayers, multilayers and Superlattice structures for multiferroic applications"* DAE-BRNS **National symposium** on **Pulsed laser ablation** (PLD-2005) on Nov-2005.

3. "Ferroelectric and Impedance spectroscopic studies in Ca doped $BaTiO_3$ thin films" **Poster presentation** on **National Seminar** on Ferroelectrics and Dielectrics (**NSFD- 2002**) held at Indian Institute of Science, Bangalore, India. Dec 2002.

4. An **Oral** Presentation on **Division of Chemical Sciences Day** on *"Artificial Relaxor Ferroelectric Superlattices"* on 28th Jan 2006.

## International Schools Attended

1. Attended "**Eurpean school on Multiferroics (ESMF 2008)**" – summer school held at Residencia Universitaria (RESA) campus de Montilivi, Girona, Spain. **1-5th September 2008**.

2. **Attended** the **ICMS-ICMR** International Winter School on "**Physics and Chemistry of Solids**" held at JNCASR, Bangalore, India. December - 2007.

3. "**European School on Multiferroics (ESMF 2007)**" – Participant in summer school held at Grenoble, France, **July-2007**.

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