



## Report on XX National seminar on ferroelectric Dielectrics 2018

Date of Event : 14-16th December ,2018

Venue - Department of Pure and Applied Physics , GGV Bilaspur

XX NSFD-2018	
<b>National Advisory Committee</b> Dr Ashutosh Sharma, Chairman, DST, New Delhi Dr Girish Sahni, DG, CSIR, New Delhi Prof R N P Choudhary, ITER Dr A K Sinha, , Director, UGC DAE CSR Prof Ajay Gupta, Amity University, Noida Dr D Kanjilal, IUAC, New Delhi Dr A C Pandey, Director, IUAC, New Delhi Prof Pushan Ayyub, TIFR, Mumbai Prof S M Yusuf,, BARC, Mumbai Dr V Ganesan, Centre Director, UGC DAE CSR-I Dr V Singuri, Centre Director, UGC DAE CSR-M Dr K K Raina, Vice Chancellor, DIT University Prof A R Kulkarni, IIT Mumbai Prof V R K Murthy, VIT – AP Prof S C Mathur,, Ex – Prof, IIT -Delhi Prof R P Tondon, Delhi University, New Delhi Prof S B Krupanidhi, IISc, Bengaluru Prof Ratnamala Chatterjee, IIT, New Delhi Prof Ashish Garg, IIT, Kanpur Prof K L Yadav, IIT, Roorkee Prof D G Kuberkar, Saurashtra Univ. Rajkot Dr S M Gupta, RRCAT, Indore Dr Chandra Prakash, DRDO, Delhi Dr T P Sinha, Bose Inst. Kolkatta Dr K Srinivas, Univ of Delhi Dr Rajnish Kurchania , MANIT, Bhopal Dr H B Sharma, Manipur Univ., Imphal	<b>Local Advisory Committee</b> <b>Patron</b> Prof. Anjila Gupta Vice-Chancellor <b>Convenor</b> Prof. P. K. Bajpai <b>Co-Convenor</b> Dr. H. S. Tewari Dr. M. N. Tripathi <b>Organizing Secretaries</b> Dr. Goverdhan Reddy Turpu Dr. Pradip Das <b>Joint Organizing Secretaries</b> Dr. R K Pandey Dr. Ajai K Gupta <b>Treasurers</b> Dr. M P Sharma Dr. S P Patel <b>Members</b> Dr. Parijat Thakur Dr. Ram P Prajapati Dr. Tarkeshwar Trivedi Mr. P Rambabu Prof. G K Patra Dr. Charu Arora Dr. S K Singh Dr. Santosh S Thakur Dr. Subhash Banerjee Dr. Vijay K Rai Dr. Bhaskar Sharma Dr. Manorama Singh Dr. Arti Srivastava Dr. Soma Das Prof. R S Kher Prof. R K Saxena Prof. Vinod Dubey Prof. A P Goswami Dr. K P Tiwari Dr. K N Singh Dr. N K Chandan

**XX NSFD-2018**  
**National Seminar**  
**on**  
**FERROELECTRICS & DIELECTRICS**  
**14 – 16 December, 2018**  
  
**Department of Pure and Applied Physics**  
**Guru Ghasidas Vishwavidyalaya, Koni**  
**Bilaspur 495009, (C.G.), India**





### Details of Event Proceedings

Date (DD-MM- YYYY)	Details of the Session	Details of Resource Person	Number of Participants
14-12- 2018	Registration at Rajat Jayanti Sabhaghar, GGV, Bilaspur,		300
	Inauguration of XX National Seminar on Ferroelectrics and Dielectrics, 2018 at Rajat Jayanti Sabhaghar, GGV, Bilaspur		300
	Key note address	Dr Ajit Sinha Director, UGC DAE CSR, Indore	300
	NSFD Theme Talk	Prof R N P Choudhary, SOA, Bhubaneswar	200
	Session I	<b>Chairman : Prof R N P Choudhary</b> <b>Invited Talk 1: Prof V R K Murthy,</b> Former Head, Dept of Phy, IIT, Chennai  Title of the talk: "Microwave Sintering Studies on Bulk and Nano Ceramics" <b>Invited Talk 2: Prof M T Sebastian</b> Retired Chief scientist, CSIR-NIIST, Trivandrum Title of the talk: "Materials for 5 th generation (5G)"	200



	<p>wireless communication and internet of things (IOT)”</p> <p><b>Invited Talk 3: Prof D Pamu</b> Dept of Phy, IIT, Guwahati Title of the talk: The role of nanoceramics in microwave applications</p> <p>Oral Presentations</p> <p>1. The Role of Rare-Earth Substitution in Modification of Electrical, Magnetic and Ferroelectric Properties of Multi-Perovskite Solid Solutions</p> <p>C. Behera</p> <p>2. Dielectric and Domain Behaviour of Ferroelectric Al-doped KNbO<sub>3</sub> Single Crystal.</p> <p>Sanjay kumar, H. Sham kuwar , Naresh M. Patil, Vivek B. Korde</p> <p>3. Dielectric anomalies in Bismuth ferrite</p> <p>4. Pardeep K. Jha and R.K. Dwivedi</p> <p>5. Structural, Dielectric and Electrical Properties of Lead-Free Complex Perovskite Ferroelectric: (Sr<sub>0.2</sub>Bi<sub>0.8</sub>)(Fe<sub>0.8</sub>Ce<sub>0.2</sub>)O<sub>3</sub></p> <p>6. Bijuni C Sutar, Rutuparna Das, R.N.P. Choudhary</p> <p>5. Structural and Dielectric Studies of Lead Doped Bismuth Layered Ceramics</p> <p>6. P. L. Deepti , Amrita Nayak, S. K. Patri and R. N. P Choudhary</p>	
	<b>Poster Presentation</b>	<b>100</b>
Session II	<p><b>Chairman : Dr V R K Murthy</b></p> <p><b>Invited Talk 4: Dr. A Dixit</b> Depart of Phy, IIT, Jodhpur Title of the talk: “Magnetic ordering <u>driven</u> unconventional ferroelectrics”</p> <p><b>Invited Talk 5 : Dr A K Himanshu</b> VECC, Kolkatta Title of the talk: “Structural and ferroelectric studies of Sr<sup>2+</sup>-PZT: A potential material for high power piezoelectric transformer application”</p> <p>Oral Presentations</p> <p>Dysprosium substituted PZT dielectric ceramics</p> <p><u>S. C. Panigrahi</u>, Piyush R. Das</p> <p>7. Piezo-multiferroicity in Pb free perovskite</p>	<b>200</b>



		<p>structured materials</p> <p>Priyanka A. Jha and P. Singh</p> <p>8. Relaxor behavior and Dielectric relaxation in <math>Sr_xBa_{1-x}Nb_2O_6</math> (SBN) Electro-ceramic</p> <p>K.N. Singh and P.K. Bajpai</p> <p>9. Phase transitions in <math>(Ba_{1-x}Gd_x)(Ti_{1-x}Fe_x)O_3</math> (<math>0.1 \leq x \leq 0.5</math>)</p> <p>Sushrisangita Sahoo, P K Mahapatra R N P Choudhary</p>	
<b>15-12-2018</b>	<b>Session II</b>	<p><b>Chairman: Dr A K Sinha</b></p> <p><b>Invited Talk 6: Prof D K Bisoyi</b> NIT , Rourkela Title of the talk: “Material Characterization at Nano order length scale – A SAXS study”</p> <p><b>Invited Talk 7: Dr C Arora</b> GGV, Bilaspur Title of the talk: “Synthesis, characterization and adsorptive removal of toxic organic dye using Iron based metal organic framework”</p> <p><b>Oral Presentations</b></p> <p>10. <math>Al_2O_3</math> Modified <math>BaSnO_3</math> Thick Films with Improved Gas Sensing Properties</p> <p>11. Rakesh Kumar Kurre and P.K. Bajpai</p> <p>12. Investigation of Dielectric and Ferroelectric Properties of Triglycine Sulphate Crystal</p> <p>13. Muzaffar Iqbal Khan and Trilok Chandra Upadhyay</p> <p>12. THREE DIMENSIONAL SHAPES OF ELLIPTICAL GALAXY: NGC 7619</p> <p>Arun Kumar Singh</p> <p><b>Invited Talk 8: Prof Smita Acharya</b> RTM Nagpur University, Nagpur Title of the talk: “Interface engineering for tailoring ferroelectric and ferromagnetic behaviour of perovskite - spinel composite in multiferroic system”</p> <p><b>Invited Talk 9: Prof K Prasad</b> T M Bhagalpur University, Bhagalpur Title of the talk: “Deformation-induced electromagnetic radiation using cement-piezoceramic composites – A step towards structural health monitoring”</p> <p><b>Invited Talk 10: Dr Subhash Banerjee</b></p>	<b>100</b>



		<p>GGV, Bilaspur Title of the talk: “Design and Development of Hybrid Functional Nanomaterials for Organic Synthesis”</p> <p><b>Oral Presentations</b></p> <p>13. Structural &amp; Optical Properties of Dysprosium doped Calcium Zirconate Phosphor <u>Ishwar Prasad Sahu*</u></p> <p>14. Use of single source molecular precursors to synthesize metal chalcogenide nanoparticle</p> <p>15. A. K. Tiwari and P. K. Bajpai</p> <p>15. Electrical and Optical behavior of <math>Pb_{0.5}Ba_{1.5}BiNbO_6</math> double Perovskite</p> <p>B. N.Parida, Niranjana Panda, R.Padhee and R. K.Parida</p> <p>16. Analysis of temperature and frequency dependent dielectric study, dynamic hysteresis loop and thermal energy conversion in <math>BaZr_{0.05}Ti_{0.95}O_3</math> ceramic</p> <p>G. Nag Bhargavi, T. Badapanda, A. Khare, S. Anwar, Nameeta Brahme</p>	
16.12.2018	Session III	<p><b>Chairman : Prof M T Sebastian</b></p> <p><b>Invited Talk 8: Prof Smita Acharya</b> RTM Nagpur University, Nagpur Title of the talk: “Interface engineering for tailoring ferroelectric and ferromagnetic behaviour of perovskite - spinel composite in multiferroic system”</p> <p><b>Invited Talk 9: Prof K Prasad</b> T M Bhagalpur University, Bhagalpur Title of the talk: “Deformation-induced electromagnetic radiation using cement-piezoceramic composites – A step towards structural health monitoring”</p> <p><b>Invited Talk 10: Dr Subhash Banerjee</b> GGV, Bilaspur Title of the talk: “Design and Development of Hybrid Functional Nanomaterials for Organic Synthesis”</p> <p><b>Oral Presentations</b></p> <p>13. Structural &amp; Optical Properties of Dysprosium doped Calcium Zirconate Phosphor <u>Ishwar Prasad Sahu*</u></p>	150



		<p>14. Use of single source molecular precursors to synthesize metal chalcogenide nanoparticles A. K. Tiwari and P. K. Bajpai</p> <p>15. Electrical and Optical behavior of <math>Pb_{0.5}Ba_{1.5}BiNbO_6</math> double Perovskit B. N.Parida, Niranjana Panda, R.Padhee and R. K.Parida</p> <p>16. Analysis of temperature and frequency dependent dielectric study, dynamic hysteresis loop and thermal energy conversion in <math>BaZr_{0.05}Ti_{0.95}O_3</math> ceramic G. Nag Bhargavi, T. Badapanda, A. Khare, S. Anwar, Nameeta Brahme</p>	
	Session IV	<p><b>Chairman: Prof S K Rout</b></p> <p><b>Invited Talk 11: Prof K Srinivas</b> Delhi University, New Delhi Title of the talk: "Infrared to visible light-up-conversion effects in ferroelectric host materials"</p> <p><b>Invited Talk 12: Prof G K Patra</b> GGV, Bilaspur Title of the talk: "Novel benzohydrazide based fluorescent colorimetric chemosensors for detection of hazardous ions and their applications in real sample analysis"</p> <p><b>Invited Talk 13: Prof R K Shukla</b> University of Lucknow, Lucknow Title of the talk: "Electrochemically Prepared Polyaniline and its Applications"</p> <p><b>Oral Presentations</b></p> <p>17. Thermoluminescence (TL) of europium doped calcium aluminate phosphor and combustion technique M. Z. Khan, D.Uthra and Anil Kumar Choubey</p> <p>18. TB structured ferroelectrics in Materials Research B.B.Mohanty</p> <p>19. Soft materials-based dielectric/ferroelectric nanocomposites and their devices applications Ravi K. Shukla and K.K. Raina</p>	<b>150</b>
		Poster Presentation	<b>100</b>
	Session V	<p><b>Chairman: Prof S B Kondawar</b></p> <p><b>Invited Talk 14: Dr D K Singh</b></p>	<b>150</b>



		<p>BIT, Mesra Title of the talk: “Nano-diamonds with Engineered Nitrogen-vacancies (NV): Photo-stable Source of single photons and uniformly bright bio-marker” <b>Invited Talk 15: Prof S K Rout</b> BIT, Mesra Title of the talk: “Energy Harvesting from Mechanical Vibration of Lead-Free piezoceramics” <b>Invited Talk 16: Dr Rahul Singhal</b> NIT, Jaipur Title of the talk: “Cu Nanoparticles in Fullerene C70 matrix”</p> <p><b>Oral Presentations</b> 20. CURRENT RESEARCH IN FERROELECTRIC OXIDES Priyadarshini Sanghamitra Sahoo 21. Structural and electrical properties of dysprosia/lanthana doped nano-zirconia based electrolyte materials for intermediate-temperature solid oxide fuel cell. M. Pastor 22. Molecular polarizability and Perturbation of Absorption Spectroscopic Studies of Biologically Important Molecules: 2-Amino-4methyl-3-Nitro Pyridine by Polar and Non-Polar Solvents Vaishali Dixit</p>	
Session VI	<p><b>Chairman: Prof Smita Acharya</b> <b>Invited Talk 17: Prof Anurag Srivastava</b> IITM, Gwalior Title of the talk: “Air Pollution Challenges and Opportunities: 1D and 2D Nanomaterial based Sensors”</p> <p><b>Invited Talk 18: Dr Ayush Khare</b> NIT, Raipur Title of the talk: “An investigation on structural, electrical and optical properties of heterovalent ions doped Barium Zirconium Titanate ceramics” <b>Invited Talk 19: Prof Balak Das</b> University of Lucknow, Lucknow Title of the talk: “Studies on structural transformation, enhanced magnetic and optical</p>	<b>150</b>	



		<p>properties of Mn-substituted BiFeO<sub>3</sub> thin films”</p> <p><b>Oral Presentations</b></p> <p>23. Experimental evidence of magnetoelectric Coupling in BaTiO<sub>3</sub> / Fe<sub>3</sub>O<sub>4</sub> Multiferroic Heterostructures B.K. Pandey and S.B. Krupanidhi</p> <p>24. A versatile single electron transfer living radical polymerization to prepare well defined design of polymacromonomers Bhaskar Sharma</p> <p>25. Synthesis, Structural, dielectric and electrical characteristics of BiFeO<sub>3</sub>-NaNbO<sub>3</sub> solid solutions: A case study for Bi<sub>0.8</sub>Na<sub>0.2</sub>Fe<sub>0.8</sub>Nb<sub>0.2</sub>O<sub>3</sub> Manojit De*, Sugato Hajra, Rashmi Tiwari, Sushrisangita Sahoo, R.N.P. Choudhary, H.S. Tewari</p>	
Session VI	<p><b>Chairman: Prof K Prasad</b></p> <p><b>Invited Talk 20: Prof Anachal Srivastava</b> University of Lucknow, Lucknow Title of the talk: “ZnO Based Films as Transparent Conducting Electrode”</p> <p><b>Invited Talk 21: Dr M N Tripathi</b> GGV, Bilaspur Density Functional Study of Lead-free Photovoltaic Materials</p> <p><b>Invited Talk 22: Dr S K Singh</b> GGV, Bilaspur Title of the talk: “From metal to metal – free nano catalysis routes to sustainable chemistry”</p> <p>Oral Presentations</p> <p>26. Dielectric and magnetic studies of phase pure GaFeO<sub>3</sub> multiferroic material Ranajit Dey and P. K. Bajpai</p> <p>27. Quantum Oscillations and Spin-momentum locking in (Sn/Pb)Bi<sub>2</sub>Te<sub>4</sub> 3D Topological insulator Priyanath Mal, Ganesh Bera, G. R. Turpu, C. V. Tom and Pradip Das</p> <p>28. Induced Ferroelectricity in Cr doped FeVO<sub>4</sub> Multiferroic materials Ganesh Bera, V. R. Reddy, A. Surampalli, P. Mal, P. Das and G. R. Turpu</p> <p>29. Deposition and characterization of CuS/PVA nanocomposite thin films using sol-gel route: Effect</p>	<b>100</b>	





		of annealing Sandhya Yadav and P.K. Bajpai	
	Session VI	<p><b>Chairman: Prof K Prasad</b></p> <p><b>Invited Talk 23: Prof S B Kondawar</b> RTM Nagpur University, Nagpur Title of the talk: “Recent advancement of nanofibers fabrication for energy, sensor, textiles and biomedical applications”</p> <p><b>Invited Talk 24: Dr Soma Das</b> GGV, Bilaspur Title of the talk: “De-stabilization of charge order state through in-homogeneity in Oxygen content in polycrystalline <math>\text{Eu}_{0.2}\text{La}_{0.3}\text{Sr}_{0.2}\text{Ca}_{0.3}\text{MnO}_3</math>”</p> <p><b>Invited Talk 25: Dr S P Patel</b> GGV, Bilaspur Title of the talk: “Growth and Properties of Glancing Angle deposited Co thin films on Ion Eroded Rippled Surfaces”</p> <p>Oral Presentations</p> <p>30. Structural, Optical and Morphological Properties of CdTe Nanoparticles Synthesized using a three Steps Hydrothermal Route Rekha Garg Solanki and P Rajaram</p> <p>31. Chiral Recognition of (R) and (S) Valuable Terminal Epoxides by Vibrational Circular Dichroism Spectra: Density Functional Theory Approach <u>Santosh Singh Thakur</u> and Deepak Pate</p> <p>32. Structural, Morphological and Vibrational Characterization of La doped Ni-Zn Ferrites <b>Rashmi Tiwari, Vasundhara Shahu</b>, Manojit De, M.P. Sharma, and H. S. Tewari</p> <p>33. Electrical properties of Nd doped <math>0.5\text{BiNd}_x\text{Fe}_{1-x}\text{O}_3-0.5\text{PbZrO}_3</math> (<math>x = 0.05, 0.1</math> and <math>0.2</math>) Ambika Ray, Tanmoy Basu, <u>Banarji Behera</u> and P. Nayak</p> <p>34. Opto-electronic properties of ZnO phases along predicted route of phase transition: A first-principles study <u>Santosh Singh</u>, and Madhvendra Nath Tripathi</p>	<b>300</b>

**A Brief Abstract of the Event (Maximum 500 Words):**

**Report on XX - National Seminar on Ferroelectrics and Dielectrics  
(NSFD) National Conference**

A bi-annual conference of National Seminar on Ferroelectrics and Dielectrics (NSFD) being organized at Guru Ghasidas Vishwavidyalaya from 14 – 16 December, 2018. This is the 20<sup>th</sup> occurrence of this conference which is highly acclaimed for its success in furthering research in the area of ferroelectrics and dielectrics, spreading research culture and networking various groups with in the country. The conference was inaugurated by Dr Ajit Sinha, Director, UGC DAE CSR, Indore along with Prof Kamal Singh, former Vice Chancellor, Amaravati University on 14<sup>th</sup> December 2018. Dr Sinha, delivered key note address where he mentioned about the researches carried out by the faculty members of the department by utilizing the facilities of UGC DAE CSR, and the role of the scientists from the department in the area of materials science. The conference hosted around 20 invited talks by various national and international reputed scientists including wide ranging areas in the field of materials science. The conference is attended by more than 150 delegates and several poster presentations and oral presentations were made by the attendees. The conference was very much fruitful in bringing together all the researchers working in this field and laid path for collaborations between various institutes.



**Some glimpses of the conference including the opening ceremony**

**गुरु घासीदास विश्वविद्यालय**  
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)  
**कोनी, बिलासपुर - 495009 (छ.ग.)**



**Guru Ghasidas Vishwavidyalaya**  
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