



Dr. Krishna Auromun

Designation: Guest Faculty

Qualification: MPhil, Ph.D.

Date of Birth: 10.01.1991

Date of Joining: 18.03.2023

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WOS: <https://www.webofscience.com/wos/author/record/IYS-8734-2023>

Courses taught

Waves and Optics, Modern Physics, Quantum Mechanics

Research experience

- Three year of research experience (30.09.2013 to 31.03.2016) in the field of material science in School of Physics, Sambalpur University (DST First Track project).
- Four year of research experience (14.08.2018 to Feb 2023) in the field of material science in Siksha 'O' Anusandhan (deemed to be University) (Including my PhD work).

Teaching experience

- Eight months of teaching experience (01.08.2017 to 17.04.2018) in the department of Physics, Rama Devi Women's University.

Extracurricular Interests

- Writing on any subject, writing poems.
- Qualified Sangeet Visarad (1st to 6th year) in Classical Vocal Singing.

Publication overview (SCI-Indexed)

• Number of publications	12
• Number of citations	86
• h-index	06
• Average citations per publication	10

Research Publication details:

1. Krishna Auromun, N. K. Mohanty, S K. Satpathy, A. K. Behera, P. Nayak, Banarji Behera, Structural and Dielectric Properties of $0.7(\text{BiGdxFe}_{1-x}\text{O}_3)-0.3(\text{PbTiO}_3)$ ($x=0.05-0.20$) Multiferroic Composites, International Journal of Emerging Technology and Advanced Engineering, 6, 12 (2016). Citation: <https://www.researchgate.net/publication/315456764>
2. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural, dielectric, ferroelectric and electrical behavior of $(\text{Bi}_{0.5}\text{Ba}_{0.25}\text{Sr}_{0.25})(\text{Ti}_{0.25}\text{Mn}_{0.25}\text{Fe}_{0.5})\text{O}_3$* , *Ferroelectrics* 588(1):118-124, DOI:10.1080/00150193.2022.2034446 IF: 0.62
3. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural, Dielectric and Electrical investigation of Zirconium and Tin modified 0.5BFO-0.5BST*, *Materials Chemistry and Physics* 250, 123033 (2020), Date of Pub: 4 Aug 2020 DOI: 10.1016/j.matchemphys.2020.123033 IF: 3.408
4. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural, dielectric and electrical characteristics of lead-free scandium modified barium iron niobate: $\text{Ba}(\text{Fe}_{0.5-x}\text{Sc}_x\text{Nb}_{0.5})\text{O}_3$* , *Physica B Condensed Matter* 594, 412291, Date of Pub: 1 Oct 2020 DOI: 10.1016/j.physb.2020.412291 IF: 1.880
5. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural, dielectric, and electrical characteristics of selenium-modified $\text{BiFeO}_3-(\text{BaSr})\text{TiO}_3$ ceramics*, *Journal of Materials Science Materials in Electronics* 31, 8 (2020) Date of Pub: 14 July 2020 DOI: 10.1007/s10854-020-03896-5 IF: 2.195
6. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural, dielectric and electrical characteristics of manganese modified $(\text{Bi}_{0.5}\text{Ba}_{0.25}\text{Sr}_{0.25})(\text{Ti}_{0.5}\text{Fe}_{0.5})\text{O}_3$ relaxor*, *Physica Scripta* 96, (issue: 3) 035804 (2021). Date of Pub: 18-Jan-2021 , DOI: 10.1088/1402-4896/abd1ff IF: 1.985
7. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural and Electrical Performance of $(\text{Bi}_{1/2}\text{Ba}_{1/4}\text{Sr}_{1/4})(\text{Ti}_{1/2}\text{Fe}_{1/2})\text{O}_3$ Relaxor*, *Journal of Alloys and Compounds* 882(12):160590 DOI:10.1016/j.jallcom.2021.160590
8. Krishna Auromun, Ipsita Panda, Sagarika Das, Rashmi Sahoo, Effect of Zinc Substitution on Structural, Dielectric and Electrical Characteristics of $\text{Pb}(\text{Zr}_{0.48}\text{Ti}_{0.52})\text{O}_3$ Ceramics, *physica status solidi(b)* 258(10), DOI:10.1002/pssb.202100102
9. Krishna Auromun, Ram Naresh Prasad Choudhary, *Structural, dielectric and electrical behavior of $\text{Bi}_{0.85}\text{Tm}_{0.15}\text{FeO}_3$ ceramic*, *Ceramics International* 45(16), DOI:10.1016/j.ceramint.2019.07.062
10. Krishna Auromun, Sugato Hajra, Ram Naresh Prasad Choudhary, Banarji Behera, *Structural, Dielectric and Electrical Characteristics of Yttrium Modified $0.7\text{BiFeO}_3-0.3\text{PbTiO}_3$* , *Solid State*

11. Krishna Auromun, Sugato Hajra, R. N. P. Choudhary, Banarji Behera, *Fabrication, electrical and magnetic properties of $0.7(\text{BiGdxFe}_{1-x}\text{O}_3)-0.3(\text{PbTiO}_3)$ composites*, Journal of the Chinese Advanced Materials Society 6(4), DOI:10.1080/22243682.2018.1555057
12. Krishna Auromun, Sugato Hajra, Ram Naresh Prasad Choudhary, Banarji Behera, *Structural and electrical properties of $0.7(\text{BiSm}_x\text{Fe}_{1-x}\text{O}_3)-0.3(\text{PbTiO}_3)$ composites*, Applied Physics A 125(1), DOI:10.1007/s00339-018-2342-6

National or International Conferences attended

1. Poster Presentation in International Conference on MULTIFUNCTIONAL MATERIALS OF FUTURE APPLICATION (ICMFA-2015), held at Department of Chemistry, IIT (Banaras Hindu University) Varanasi during 27th-29th October 2015.
2. Poster Presentation in ational Seminar on “RECENT DEVELOPMENTS IN COMPOSITE AND NANO MATERIALS, RDCN-2015” during 7th-8th February-2015 at Hi-Tech College of Engineering, Bhubaneswar, Odisha.
3. Poster Presentation in (NSFD-2018) XX-National Seminar On Ferroelectrics and Dielectrics organised by Department of Pure & Applied Physics Guru Ghasidas Vishwa vidyalaya, Bilaspur (C.G.), India, during 14th-16th Dec-2018
4. Poster Presentation in National Conference on Science and Technology of Functional Materials (STFM-2019) organized by the Siksha 'O' Anusandhan (deemed to be) University, Bhubaneswar during 6th-7th Dec-2019
5. Poster Presentation in (STLDS-2019) 1st National Workshop on Science and Technology of Low Dimensional Systems organized by Siksha 'O' Anusandhan (deemed to be) University, Bhubaneswar during 1st-3rd Nov-2019
6. Poster Presentation in CONIAPS XXVII (International conference of International Academy of Physical science), Organized by International Academy of Physical Sciences at IUST and Kashmir University, Srinagar during 25th – 28th Oct. 2021.
7. Oral Presentation in the Virtual Conference on Low Dimensional Systems: Properties and Applications (LDSPA-2021) organized by the Siksha 'O' Anusandhan (deemed to be) University, Bhubaneswar during 24th & 25th July 2021.
8. Poster Presentation in (NSFD–2021) XXI National Seminar on Ferroelectrics and Dielectrics organized by IQAC and Department of Physics, Rashtrasant Tukadoji Maharaj Nagpur

University in collaboration with Dharampeth M P Deo Memorial Science College, Nagpur during 10th -13th January 2021.

9. Oral Presentation in (NSFD-2022) (Virtual) National Seminar on Ferroelectrics and Dielectrics organized by Department of Physics, School of Advanced Sciences VIT-AP University, Amaravati, India during 17th-19th December 2022.
10. Poster Presentation in International conference on Advanced materials and Applications (ICAMA-2022) organized by Siksha 'O' Anusandhan (deemed to be) University, Bhubaneswar during 15th-17th December-2022
11. Participated in the International Webinar on Trends of Current Research in Physical Science, organized by the Indira Gandhi Institute of Technology, Sarang, Odisha, India on 17th Oct-2020.
12. Participated in the International Webinar on Recent Advances in Science and Technology (RAST-2020), organized by the Indira Gandhi Institute of Technology, Sarang, Odisha, India during 6th- 8th Nov-2020.

Research Interests

... Design, synthesis and characterize the solid oxide materials having ferroelectric, magnetic, piezoelectric and multiferroic behavior. Materials with different nature of different conductivity (ionic, electronic, mixed) for energy conversion technologies; Solid oxide fuel cells (SOFCs); Protonic ceramic fuel cells (PCFCs); Solid State Electrochemistry, Solid state ionics, Energy Conversion Technology, Renewable energy. Multifunctional electro ceramics for dielectric, ferroelectric and piezoelectric applications, Multiferroics, phase transitions for quantum computation and the spintronic applications.

Expertise

... A Ph.D. candidate with research expertise on multifunctional electro-ceramic materials delivered several talks on the fundamentals of multiferroics. Expertise on experimental techniques involving synthesis of ceramics via different physical and chemical routes, operating planetary ball milling unit (Fritsch), Impedance Analyzer and/or LCR meter (Solatron, Hioki, Novo control), PE-loop tracer (Radiant tech.), D33 meter, poling unit, X-ray diffraction instrument (Rigaku Ultima-IV) and current-voltage measurement through Keithley electrometer. Rich experience in modeling complex impedance Nyquits Plots using Z-view/Z-simp win software, Rietveld refinement of XRD data using General structure analysis system (GSAS) software, MAUD and X'Pert Highscore Plus, Crystal Structure via VESTA software, Origin plotting and fitting of the data.

Teaching Statement

- I basically follow five point of interaction with students, i.e.
- ... Addressing physical significance of mathematics involved in Physics.
 - ... Develop a variety of problem solving strategies.
 - ... Experimental approach to the given theory.
 - ... Enable students to understand the quantitative and qualitative aspects of a result.
 - ... Encourage developing the art of questioning/critical thinking.
 - ... I try to implement experimental approach in my theory classes for better understanding of students. The main motive of is to engage all aspects of the learner, including mind, body, and spirit, hence I try to bring in presentation based/ model based learning to my classroom within the available resources.
 - ... This shall be my approach if I am selected for this position in this esteemed institute. Solid State Physics, Atomic and molecular Physics, Nuclear, quantum and classical Physics are some of the basic topics I am interested to teach at both UG and PG level.
 - ... I am encouraged to arrange special classes for problems and solutions in respective topics that can be fruitful for students to crack entrance examinations at national level and pursue higher degree.