KOYAL SUMAN SAMANTARAY

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RESEARCH INTEREST:

- Perovskites
- Ferroelectrics
- Dielectrics
- Impedance/Modulus spectroscopy
- Piezoelectric properties
- Magneto-Dielectric properties
- Electrocaloric effect
- Multiferroic properties
- Piezo-photocatalysis
- Defect states study
- Piezoelectric energy harvester
- Device fabrication using Thin-film Technology

EDUCATION:

Academic Year	Course	CGPA/Percentage		Institute
2019-2020	Ph.D. Course work (Dept. of Physics)	**CGPA-9.22**		Indian Institute of Technology, Indore, India
2013-2018	5-Yr Integrated Msc. in Physics (Dept. of Physics and Astronomy)	Undergraduate (2013-2016)	Postgraduate (2017-2018)	National Institute of Technology, Rourkela, India
		CGPA: 8.44	**CGPA-9.01**	
2011-2013	Intermediate in Science	**Percentage – 86.82**		BJB Junior. College, Bhubaneswar, Odisha, India
2011	Matriculation	**CGPA: 10**		Jawahar Navodaya Vidyalaya, Mundali, Cuttack, Odisha, India

PROJECTS:

ONGOING PROJECTS:

- Piezo-photocatalysis of modified NBT based nanostructures grown using Electrospinning.
- Ferroelectric memory Device fabrication of lead-free ceramics using sputtering and spin coating.
- Fabrication of polymer ceramic composite for piezoelectric energy harvesting and piezo-photocatalysis.

COMPLETED PROJECTS:

- Investigating the electrocaloric effect in the $Na_{0.47}Bi_{0.47}Ca_{0.06-x}Ba_xTiO_3$ lead-free ceramics.
- Effect of poling on the Structure, Vibrational, and Electrical properties of $Na_{0.47}Bi_{0.47}Ca_{0.06-x}Ba_xTiO_3$ lead-free ceramics.
- Room Tempearature Magneto-Dielectric Coupling in the $CaMnO_3$ modified NBT lead-free ceramics.
- Effect of Mn doping on the Structural, Optical, and Vibrational properties of $ZnTiO_3$.
- Theoretical and experimental insight on defect dipole induced improved electrocaloric response in

Fe and Mn modified $Na_{0.47}Bi_{0.47}Ba_{0.06}Ti_{0.98-x}V_{0.02}O_3$ lead-free ceramics.

- ❖ Structure Correlated Vibrational, Optical, and Electrical Properties of Fe doped $Na_{0.47}Bi_{0.47}Ba_{0.06}Ti_{0.98-x}V_{0.02}Fe_xO_3$

PUBLICATIONS:

- Effect of poling on the structural, vibrational, and electrical properties of $Na_{0.47}Bi_{0.47}Ca_{0.06-x}Ba_xTiO_3$ lead-free ceramics, Koyal Suman Samantaray, Ruhul Amin, Maneesha P., Indranil Bhaumik, and Somaditya Sen, (Under Review in Journal of Applied Physics).
- Room Temperature Magneto-dielectric coupling in the $CaMnO_3$ modified NBT lead-free ceramics, Koyal Suman Samantaray, Ruhul Amin, Saniya Ayaz, A. K. Pathak, Christopher Hanley, A. Mekki, K. Harrabi, Somaditya Sen, (Under review in Journal of the European Ceramic Society).
- Defect Dipole Induced Electrocaloric Effect in modified NBT-6BT Ceramics, KS Samantaray, R Amin, EG Rini, I Bhaumik, A Mekki, K Harrabi, S Sen, Journal of Alloys and Compounds 903, (2022), 163837.
- Room Temperature Multiferroicity with enhanced ferroelectric and ferromagnetic properties in $Ba_{0.75}Pb_{0.25}Ti_{1-x}Fe_xO_3$, Ruhul Amin, Koyal Suman Samantaray, Saniya Ayaz, Sachindra N. Sarangi, Indranil Bhaumik, Somaditya Sen, Journal of Alloys and Compounds 897, (2022), 162734.
- Tunable ultraviolet sensing performance of Al-modified ZnO nanoparticles, Saniya Ayaz, Ruhul Amin, **Koyal Samantray**, Arup Dasgupta, Somaditya Sen, Journal of Alloys and Compounds 884 (2021) 161113.
- Grain and grain boundary contributions to AC conductivity in ferroelectric $Ba_{0.75}Pb_{0.25}Ti_{1-x}Zr_xO_3$ ceramics, Ruhul Amin, **Koyal suman Samantaray**, E.G., Rini, Indranil Bhaumik, Somaditya Sen, Ceramics International 47 (2021) 13118–13128.
- Fe-doped $Na_{0.47}Bi_{0.47}Ba_{0.06}Ti_{0.98-x}V_{0.02}Fe_xO_3$: Structure correlated vibrational, optical, and electrical properties, **Koyal Suman Samantaray**, Ruhul Amin, E.G. Rini, Somaditya Sen , Journal of Alloys and Compounds 848 (2020) 156503.
- Electrochemical glucose-sensing characteristics of two-dimensional faceted and non-faceted CuO nanoribbons, Rakesh K. Sahoo, Arya Das, **Koyel Samantaray**, Saroj K. Singh, Rajaram S. Mane, Heon-Cheol Shin, Je Moon Yun, and Kwang Ho Kim, CrystEngComm, 2019, 21, 1607.
- Hydrothermal Synthesis of CuWO4-Reduced Graphene Oxide Hybrids and Supercapacitor Application, **Koyal Suman Samantaray**, Surjit Sahoo and Chandra Sekhar Rout, American Journal of Engineering and Applied Sciences, 9(3), 584-590.

WORKSHOPS AND CONFERENCES:

- ❖ **2022 (MAR):** Short talk at Quality Improvement Programme (QIP) held at IIT Indore.
- ❖ **2021 (NOV):** Oral Presentation at International Conference on Technologies for Smart Green Connected Society 2021 (ICTSGS)**.**
- ❖ **2021 (MAR):** Oral Presentation at International Conference on Current Trends in Material Science and Engineering (CTMSE).
- ❖ **2021 (FEB):** Poster Presentation at International Conference on Nanoscience and Nanotechnology (ICONN).
- ❖ **2020 (AUG):** Participated in International Webinar on Frontiers in Experimental Physics (IWFEP).
- ❖ **2019 (DEC):** Oral Presentation at 2nd International Conference on processing and characterization of materials (ICPCM) held at NIT-Rourkela.
- ❖ **2017 (SEPT):** International School on Fundamental Crystallography and Workshop on Structural Phase Transitions: A Satellite School of 24th IUCr Congress, 2017 at National Institute of Technology, Rourkela.

AWARDS AND FELLOWSHIPS

- ❖ **2020 (May):** Awarded with Most Prestigious fellowship in India **(Prime Minister Research Fellowship-PMRF)** to Pursue Ph.D. degree **(2019-2024)**
- ❖ 2016-17, 2015-16 Awarded for best in academic performance