Annexure -1

Faculty	**Dr. Vimal Narayan Sahoo, M.Sc., Ph.D.** **Assistant Professor** **Department of Physics** **East Point College of Engineering & Technology**
	**Profile***
	Dr. Vimal Narayan Sahoo holds a Ph.D. in Physics from Pondicherry University, Puducherry, where his research focused on tailoring the structural, optical, electrical, and magnetic properties of hematite (α-Fe_2O_3) through co-doping and ion-beam irradiation. He earned his M.Sc. in Physics from Pondicherry University and his B.Sc. in Physics from Ravenshaw University, Cuttack. His research interests span condensed matter and experimental materials physics, with a focus on transition-metal oxide magnetism, semiconductor materials, ion-beam-induced modification, structure–property correlations, and electrical and magneto-transport phenomena. He is proficient in a broad range of characterization techniques, including XRD and Rietveld refinement, Raman spectroscopy, UV-Visible spectroscopy, RBS, XPS, FE-SEM/EDX, PPMS, and Hall-effect and magnetoresistance measurements, alongside ion-beam irradiation methods. Over more than five years at Pondicherry University and the Inter-University Accelerator Centre (IUAC), New Delhi, he has developed a comprehensive experimental workflow — spanning synthesis, ion-beam modification, and multi-technique characterization of hematite (α-Fe_2O_3) and spinel ferrite systems — encompassing mechanical alloying, co-precipitation, and thin-film deposition through to temperature-dependent electrical and magneto-transport measurements. He has authored 7 peer-reviewed publications and conference proceedings, received the Best Poster Award at the 67th DAE Solid State Physics Symposium, and mentored M.Sc. dissertation students in their research work.
	Publications 1. **V. N. Sahoo**, R. N. Bhowmik, S. A. Khan, "Enhancement of electrical conductivity, optical band gap and ferromagnetic properties by co-doping of Co and Ti ions in canted antiferromagnetic hematite (α-Fe_2O_3) system," **Materials Chemistry and Physics** 296, 127298 (2023) 2. **V. N. Sahoo**, R. N. Bhowmik, "Temperature dependent electrical conductivity and conduction mechanism of $Fe_{1.4}Co_{0.3}Ti_{0.3}O_3$" **AIP Conference Proceedings** 2995, 020144 (2024) 3. **V. N. Sahoo**, R. N. Bhowmik, "Study of temperature dependence electrical properties and conduction mechanisms of Co and Ti co-doped hematite (α-Fe_2O_3) system," **Journal of Materials Science: Materials in Electronics** 36, 15 (2025) 4. **V. N. Sahoo**, D. Sherin GT, R. N. Bhowmik, R. C. Meena, S. A. Khan, "Modulation of structural phase, morphology, optical, electrical and magnetic properties of α-Fe_2O_3 films by Ag^{9+}, O^{5+} and Li^{2+} irradiated ions," **Radiation Physics and Chemistry** 239, 113342 (2026) 5. **V. N. Sahoo**, R. N. Bhowmik, "Co-doping effects of Co and Ti atoms on modifying the electrical, magnetic, and magneto-transport properties in α-Fe_2O_3 system", **Journal of Materials Science: Materials in Electronics** 37, 1912 (2026) 6. R. N. Bhowmik, **V. N. Sahoo**, P. D. Babu, A. K. Sinha, A. Bhiskar, "Equilibrium and non-equilibrium lattice structure, ferrimagnetic spin order and electrical conductivity at high temperature regime of single-phased and bi-phased Co-rich spinel ferrites," **CrystEngComm** 26, 4833 (2024) 7. R. Dhyani, A. Joshi, **V. N. Sahoo**, J. P. Singh, "Physical property variation of ferrite nanoparticles under heavy ion irradiation," **Prabha Materials Science Letters** 3, 1–28 (2024)
	Books
	Journals

~~Annexure -2~~

Magazines

Conferences

1. **V. N. Sahoo** and R. N. Bhowmik, "Annealing effect on the micro-structure, optical and electrical properties of Co and Ti co-doped $Fe_{1.6}Co_{0.2}Ti_{0.2}O_3$ system," Poster, 7th International Conference on Ion Beams in Materials Engineering and Characterization (IBMEC), IUAC, New Delhi, Nov 2022.
2. **V. N. Sahoo** and R. N. Bhowmik, "Temperature dependent electrical properties and conduction mechanism of Co and Ti co-doped α-Fe_2O_3 system," Poster, 66th DAE Solid State Physics Symposium (SSPS), BIT Mesra, Ranchi, Dec 2022.
3. **V. N. Sahoo** and R. N. Bhowmik, "Structural, optical and electrical properties of $Fe_{1.8}Co_{0.1}Ti_{0.1}O_3$system," Poster, 67th DAE Solid State Physics Symposium (SSPS), GITAM, Vizag, Dec 2023. **Awarded Best Poster in "Transport properties and semiconductor physics" category.**
4. **V. N. Sahoo**, Divya Sherin, R. N. Bhowmik, R. C. Meena, A. Tripathi, "Modifications on structural phase, optical, and surface magnetic properties of 120 MeV Ag^{9+} ion beam irradiation on α-Fe_2O_3 films," Poster, IUMRS International Conference in Asia (IUMRS-ICA), Indore, Dec 2024.

Achievements / Awards / Recognitions

Best Poster award in "Transport properties and semiconductor physics" category at 67th DAE-SSPS conference organized by BARC, India.