

Bio-Data of Dr. Debadhyan Behera

1. Name: Dr. Debadhyan Behera

2. Designation: Assistant Professor of Physics

3. Correspondence address: Department of Physics, Ravenshaw University, Cuttack

4. Date of joining: 1st Nov 2012

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6. Qualification: M.Sc., Ph.D.

Title of Ph.D. thesis: Studies on preparation, structural, optical and electrical characterization of pure and doped ZnO thin film for sensor application.

Supervisor's Name: Dr. Bhabani Sankar Acharya, Scientist-F

Name of Institute: CSIR-IMMT, Bhubaneswar-75103 (Regd. under Utkal University)

Year of Award: 2008

Fellowship received: CSIR-JRF

7. Experience/ Research Interest:

■ More than 12 years of teaching experience in Physics (Electronics) at B.Sc. and M.Sc. level till date.

■ Experience in handling and data interpretation for Transmission Electron Microscope, Field emission scanning electron microscope, MicroRaman Spectrometer and X-ray Diffractometer etc.

■ Research on synthesis and characterization of thin films and nanomaterials for TCO, gas sensor, antibacterial agent and photocatalytic applications

8. Research Guidance:

Sl. No.	Name of student	M.Phil / Ph.D.	Title of thesis
1	Hemanginee Panda	M.Phil.	Study of the principles and structures of some typical thin film photovoltaic cells

2	Manoj Kumar Behera	M.Phil.	Study of Properties of Indium tin oxide (ITO) thin films
3	Pujashree Priyadarshini Sethy	M.Phil.	Synthesis and properties of p-type copper aluminum oxide (CuAlO_2) thin film
4	Srinibas Pradhan	M.Phil.	Precursor effect on the structural, optical and electrical properties of spray pyrolytic tin oxide thin films: A review
5	Bijayalaxmi Sahoo	Ph.D.	Probing the IZO thin films for applications as gas sensor and antibacterial agents
6	Lipan Pradhan	Ph.D.	Preparation of doped SnO_2 nanoparticles by hydrothermal technique and study of effect of doping on their structural, optical and photocatalytic properties
7	Itishree Nayak	Ph.D.	Ongoing
8	Abinash Pradhan	Ph.D.	Ongoing
9	Prachibarsha Panda	Ph.D.	Ongoing

9. Publications

1	B Sahoo, A Pradhan, S Rout and D Behera, “Impact of Sn–In Codoping on Structural, Morphological, and Optoelectronic Properties of Spray–Deposited ZnO Thin Films”, ChemSci Advances, 2025, Vol. 2, No. 2, 125-135
2	I Nayak, S Jena, D Behera and D K Mishra, “Probing the structural, optical absorption, dielectric and impedance properties of Sr-modified BaMnO_3 ceramics”, J Mater Sci: Mater Electron (2025) 36:521
3	N R Panda, S K Sahu, A Palai, T Yadav, D Behera, D Sahu, “Unraveling the synergistic effects in ZnO-MoS ₂ nanocomposite leading to enhanced photocatalytic, antibacterial and dielectric characteristics”, Chemical Physics Impact 8 (2024) 100550
4	B Sahoo, U Subudhi, S K Pradhan, D Behera, “Probing the effect of stoichiometry on structural, optical and bacterial growth inhibition properties of ZnO thin films against E. coli”, Nano-Structures & Nano-Objects 38 (2024) 101124

5	L Pradhan, S Soren, S Rout, R Sakthivel, D Behera, “synthesis of tin oxide nanoparticles by hydrothermal technique and study of their structural and optical absorption properties”, <i>Procedia Environmental Science, Engineering and Management</i> 10 (2023) (1) 97-103
6	B Sahoo, D Behera, S K Pradhan, “Effect of Sn-In codoping on structural, morphological, optical and LPG sensing properties of ZnO thin films”, <i>Procedia Environmental Science, Engineering and Management</i> 10 (2023) (1) 79-88
7	L Pradhan, S Rout, B K Parida, S R Mohapatra, R Sakthivel and D Behera, “Analyzing the role of Ni dopant to change the structural, optical and photocatalytic properties of SnO ₂ nanoparticles”, <i>Adv. Nat. Sci.: Nanosci. Nanotechnol.</i> 14 (2023) 035008
8	S Jena, D K Mishra, C J Sheppard, A R E Prinsloo, D Behera, P Mohanty, S Rana, and P Mallick,”Synergy-induced enhancement of magnetic properties in a-Fe ₂ O ₃ /Ni _{1+x} Fe _{2-x} O ₄ nanocomposites: role of Ni ²⁺ and annealing temperature” <i>J Mater Sci: Mater Electron</i> , (2022) https://doi.org/10.1007/s10854-022-08668-x
9	B Sahoo, S K Pradhan, D K Mishra, S K Sahoo, R R Nayak and D Behera , “Mutual effect of solvent and Fe-In codoping on structural, optical and electronic properties of ZnO thin films prepared by spray pyrolysis technique” <i>Optik - International Journal for Light and Electron Optics</i> , 228, 166134, (2021)
10	T Dash, B B Palei, N Mohanty, S S Mohapatra, R K Mishra, S K Biswal, D Behera , “Study on microstructural influence of graphene on synthesis of BaTiO ₃ ” <i>Materials Today: Proceedings</i> , DOI: 10.1016/j.matpr.2020.11.968 (2021)
11	B Sahoo, D Behera , S K Pradhan and R R Nayak, “Effect of Indium Doping on Microstructural, Optical and Fluorescence Properties of ZnO Thin Films” <i>AIP Conference Proceedings</i> , 2265, 030285 (2020)
12	B Sahoo, K J Sankaran, R Sakthivel, S K Pradhan and D Behera , “Effect of Fe-In co-doping on microstructural, optical, electrical and LPG response properties of spray pyrolytic ZnO thin films” <i>Superlattices and Microstructures</i> , 146, 106666 (2020)
13	B Sahoo, D Behera , S K Pradhan, D K Mishra, S K Sahoo, R R Nayak and K P C Sekhar, “Analysis of structural, optical and electrical properties of nanoparticulate indium doped zinc oxide thin films”, <i>Materials Research Express</i> , 6, 1150a6 (2019)

14	R R Nayak, D Behera , N Pradhan and D K Mishra, “Temperature controlled evolution of silver polypods from biomass encapsulated nanodroplets” <i>Journal of Nanoscience and Nanotechnology</i> , 18, 394-400 (2018)
15	D Debasish, S Mantry, D Behera and BB Jha, “Improvement of microstructural and mechanical properties of plasma sprayed Mo coatings deposited on Al-Si substrates by pre-mixing of Mo with TiN powder”, <i>High Temperature</i> , 52 (1), 19-25 (2014)
16	S Samantaray, D K Mishra, S K Pradhan, P Mishra, B R Sekhar, D Behera , P P Rout, S K Das, D R Sahu and B K Roul, “Correlation between structural, electrical and magnetic properties of GdMnO ₃ bulk ceramics”, <i>J of Magnetism and Magnetic Materials</i> , 339, 168-174 (2013)
17	S Mantry, D Behera , A Satapathy, BB Jha and BK Mishra, “Deposition of plasma sprayed copper slag coatings on metal substrates”, <i>Surface Engineering</i> , 29 (3), 222-227 (2013)
18	S Mantry, D Behera , SK Mishra, D Debasish, BB Jha and BK Mishra, “Erosive wear analysis of plasma-sprayed Cu slag–Al composite coatings”, <i>Tribology Transactions</i> 56(2), 196- 202 (2013)
19	S Mohapatra, DK Mishra, G Mishra, GS Roy, D Behera , S Mantry and S K Singh, “A study on sintered TiO ₂ and TiO ₂ /SiC composites synthesized through chemical reaction based solution method”, <i>J. of Composite Materials</i> , 47(24), 3081- 3089 (2013)
20	J Panigrahi , B B Nayak , D Behera , U. Subudhi and B S Acharya, “Synthesis of nano ZnO thin film on Al foil by rf glow discharge plasma and its effect on E. coli and P. Aeruginosa”, <i>Applied Physics A</i> , 108(3), 577-585 (2012)
21	M Mohapatra, D Behera , S Layek, S Anand, H C Verma and B K Mishra, “Influence of Ca ions on surfactant directed nucleation and growth of nanostructured iron oxides and their Magnetic Properties” <i>Crystal Growth & Design</i> , 12, 18–28 (2012)
22	D Behera , B Bag and R Sakthivel, “Synthesis, characterization and photoluminescence study of modified titania”, <i>Indian Journal of Pure and Applied Physics</i> , 49, 754-758 (2011)

23	D Behera , D K Mishra, S K Pradhan, R Sakthivel and S Mohanty, “Improvement in structural and mechanical properties of zinc films treated by rf plasma with argon as reactive gas”, <i>Applied Surface Science</i> , 258, 1103-1108 (2011)
24	J Panigrahi, D Behera , I Mohanty, U Subudhi, B B Nayak and B S Acharya, “Radio frequency plasma enhanced chemical vapor based ZnO thin film deposition on glass substrate: A novel approach towards antibacterial agent”, <i>Applied Surface Science</i> , 258 304-311 (2011)
25	D Behera , J Panigrahi and B S Acharya, “Probing the effect of nitrogen gas on electrical conduction phenomena of ZnO and Cu-doped ZnO thin films prepared by spray pyrolysis”, <i>International J. of Ionics</i> , 17, 741-749 (2011)
26	B K Jena, S C Sahu, B Satpati, R K. Sahu, D Behera and S Mohanty, “A facile approach for morphosynthesis of Pd nanoelectrocatalysts, <i>Chemical Communications</i> , 47, 3796-3798 (2011)
27	B B Nayak, D Behera and B K Mishra, “Nanorods of silicon carbide from silicon carbide powder by high temperature heat treatment”, <i>J. of Material Science</i> , 46, 3052-3059 (2011)
28	R R Nayak, N Pradhan, D Behera , S Mishra, L B Sukla and B K Mishra, “Green synthesis of Silver Nanoparticle by <i>Penicillium purpurogenum</i> NPMF: The Process and Optimization”, <i>J. of Nanoparticle Research</i> , 13, 3129-3137 (2011)
29	C Eswaraiah, R Sakthivel, D Behera and B K Mishra, “Synthesis and characterization of nanomaterials derived from mineral waste”, <i>Nanoscience and Nanotechnology Letters</i> , 3, 166-169 (2011)
30	B B Nayak, D Behera and B K Mishra, “Synthesis of silicon carbide dendrite by arc plasma process and observation of nanorod bundles in the dendrite arm”, <i>J. of American Ceramic Society</i> , 93(No.10), 3080-3083 (2010)
31	D Behera and B S Acharya, “Study of the microstructural and photoluminescence properties of Li doped ZnO thin films prepared by spray pyrolysis”, <i>International J. of Ionics</i> , 16, 543-548 (2010)

32	B B Nayak, O P N Kar, D Behera and B K Mishra, “High temperature nitriding of grey cast iron in arc plasma heated reactor”, <i>Surface Engineering</i> , 27(No.2), 99-107 (2011)
33	D Behera and B S Acharya, “Nano-star formation in Al doped ZnO thin films deposited by dip-dry method and its characterization using Atomic Force Microscopy, Electron Probe Microscopy, Photoluminescence and Laser Raman Spectroscopy”, <i>J. Luminescence</i> , 128, 1577-1586 (2008)
34	D Behera and B S Acharya, “Comparative study of ZnO thin films deposited by various methods for use as sensors”, <i>International J. of Ionics</i> , 10, 155-158 (2004)

10. Conferences attended

1	National Conference on “Improvised Plasma Technologies for Nanomaterials Processing and applications (NCIPT-2016)” held at Dept of Physics, Birla Institute of Technology, Mesra, Off-campus Deoghar during 25-26 Feb 2016
2	National Seminar on “Recent Advances in Physics and its Applications” at Dept of Physics, BJB Autonomous College, Bhubaneswar during 10-11 Feb 2018
3	National seminar on “Recent development in Nanoscience and Technology” at Department of Physics, Govt. Autonomous college, Rourkela during 9-10 Sept 2018
4	National Conference on “Recent Advances in Materials (RAM): Green future” held at Centurion University of Technology and Management during 6-7 July 2019
5	International Seminar on “Emerging Trends in Physics and Applications (ISETPA-2019)” at Dept of Physics, Parala Maharaja Engineering College, Berhampur during 02-04 Feb, 2019