



Government Autonomous College, Rourkela

Faculty Profile

Name	Miss. Santosini Patra			
Designation	Assistant Professor			
Department	Physics			
Address (Office)	Department of Physics, Govt. Auto College, Rourkela			
Address (Residence)	Flat No- W4/6, Civil Township, Rourkela - 769004			
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Qualifications				
Degree	Institution	Year	Subject Details	
BSc (Physics)	BJB Autonomous college, BBSR	2016	Physics (Hons.)	
MSc (Physics)	National Institute of Technology (NIT) Rourkela	2018	Physics (Hons.)	
PhD	National Institute of Technology (NIT) Rourkela	cont.	Experimental Condensed Matter Physics	
Areas of Interest/ Specialization				
Condensed Matter Physics, Quantum Dots, Solar cells, Materials characterization, Supercapacitors, corrosion, Detection of heavy metal ions, Green synthesis of nanoparticles, Synthesis of CNT and graphene.				
Teaching/Research Experience				
Organization/Institution	Designation	Duration	Role	
Govt. Auto. College, Rourkela	Asst. Professor	February 2023 – present	Course Instructor	
Dept. of Physics, NIT Rourkela	Research Scholar	August 2019- May 2022	Teaching Assistant	
Course Taught				
UG Courses – Digital system and applications, Nanomaterials and its applications, UG Physics Lab				
PG Courses – Advanced experimental physics, M.Sc. Physics Lab				
Publication Details				
Research Papers:				
1) S. Patra , M. Singh, S. Subudhi, M. Mandal, A.K. Nayak, B.B. Sahu and P. Mahanandia, 2023. <i>One-step green synthesis of in-situ functionalized carbon quantum dots from Tagetes patula flowers: Applications as a fluorescent probe for detecting Fe³⁺ ions and as an antifungal agent.</i> Journal of Photochemistry and Photobiology A: Chemistry, 442, p.114779.				
2) S. Patra , S. Subudhi, M. Mandal, I. Alam, B.V.R.S. Subramanyam and P. Mahanandia, 2022. <i>Facile green synthesis of fluorescent carbon nanoparticles using spider silks.</i> International Journal of Innovative Research in Physics, 3(2), pp.35-40.				

3) S. Patra , S. Das, J. Raiguru, B.V.R.S. Subramanyam, I. Alam, M. Mandal, S. Subudhi and P. Mahanandia, 2020, May. <i>Synthesis of carbon dots from spider silk: Conversion of waste to valuable product</i> . In AIP Conference Proceedings (Vol. 2220, No. 1). AIP Publishing.
4) I. Alam, S.K. Yadav, S. Das, B.V.R.S. Subramanyam, M. Mandal, S. Subudhi, S. Patra, S. Mahapatra and P. Mahanandia, 2023. Grain boundary-free graphene sheets for better electrical transport properties prepared by an electrochemical method. <i>International Journal of Materials Research</i> , 2023. https://doi.org/10.1515/ijmr-2022-0115
5) I. Alam, K. Sa, S. Das, B.V.R.S. Subramanyam, S. Subudhi, M. Mandal, S. Patra , B. Samanta, R.R. Sahu, S. Swain and A. Mahapatra, 2021. <i>Graphene field-effect transistor using gated ferroelectric thin film</i> . <i>Solid State Communications</i> , 340, p.114533.
6) M. Mandal, S. Subudhi, A.K Nayak, I. Alam, B.V.R.S. Subramanyam, R.P. Maheswari, S. Patra and P. Mahanandia, 2022. <i>In-situ synthesis of mixed-phase carbon material using simple pyrolysis method for high-performance supercapacitor</i> . <i>Diamond and Related Materials</i> , 127, p.109209.
7) I. Alam, S. Subudhi, S. Das, M. Mandal, S. Patra , R. Sahu, S. Dash, P. Kumar and P. Mahanandia, 2023. <i>Graphene-based field-effect transistor using gated highest-k ferroelectric thin film</i> . <i>Solid State Communications</i> , p.115258.
8) M. Mandal, S. Subudhi, I. Alam, B.V.R.S. Subramanyam, S. Patra and P. Mahanandia, 2021. <i>Hydrothermal synthesis of MnO₂@ graphene/activated carbon composite electrode with enhanced electrochemical performance for supercapacitor applications</i> . <i>International Journal of Innovative Research in Physics</i> , 3(1), pp.1-10.
9) I. Alam, K. Sa, S. Das, B.V.R.S. Subramanyam, M. Mandal, S. Subudhi, S. Patra and P. Mahanandia, 2021. <i>Study of electrical properties of a few layers of graphene sheets under Ultraviolet and Visible light irradiation</i> . <i>International Journal of Innovative Research in Physics</i> , 2(4), pp.8-14.
10) M. Mandal, S. Subudhi, I. Alam, B.V.R.S. Subramanyam, S. Patra , S. Das, J. Raiguru, A. Mahapatra and P. Mahanandia, 2021. <i>Simple and cost-effective synthesis of activated carbon anchored by functionalized multiwalled carbon nanotubes for high-performance supercapacitor electrodes with high energy density and power density</i> . <i>Journal of Electronic Materials</i> , 50, pp.2879-2889.
11) M. Mandal, S. Subudhi, I. Alam, B.V.R.S. Subramanyam, S. Patra and P. Mahanandia, 2021, July. <i>Simple and cost-effective synthesis of activated carbon@few layers of graphene composite electrode for supercapacitor applications</i> . In IOP Conference Series: Materials Science and Engineering (Vol. 1166, No. 1, p. 012007). IOP Publishing.
12) M. Mandal, S. Subudhi, I. Alam, B.V.R.S. Subramanyam, S. Patra , J. Raiguru, S. Das and P. Mahanandia, 2021. <i>Facile synthesis of new hybrid electrode material based on activated carbon/multiwalled carbon nanotubes@ ZnFe₂O₄ for supercapacitor applications</i> . <i>Inorganic Chemistry Communications</i> , 123, p.108332.
13) I. Alam, B.V.R.S. Subramanyam, S. Das, K. Sa, S. Subudhi, M. Mandal, J. Raiguru, S. Patra and P. Mahanandia, 2021. <i>A few layers of graphene sheets prepared by an electrochemical method enhance the performance of organic photovoltaic device</i> . <i>Materials Today: Proceedings</i> , 39, pp.1941-1944.
14) B.V.R.S. Subramanyam, I. Alam, S. Subudhi, M. Mandal, S. Patra and P. Mahanandia, 2020. <i>Enhanced stability of bulk heterojunction organic solar cells by application of few layers of electrochemically exfoliated graphene</i> . <i>Journal of Renewable and Sustainable Energy</i> , 12(5).
15) B.V.R.S. Subramanyam, P.C. Mahakul, K. Sa, J. Raiguru, I. Alam, S. Das, S. Subudhi, M. Mandal, S. Patra and P. Mahanandia, 2021. <i>Applications of carbon nanotubes in different layers of P3HT: PCBM bulk heterojunction organic photovoltaic cells</i> . <i>Materials Today: Proceedings</i> , 39, pp.1862-1865.

Paper Presented in Seminar/Symposium/Webinar/Workshop/FDP/Orientation/Refresher/Conference etc. [In Detail]
1) Poster presentation in the conference “3rd International Conference on Condensed Matter & Applied Physics (ICC)” held at Govt. Engineering College, Bikaner, Rajasthan, India from October 14-15, 2019 on the topic “Synthesis of carbon dots from spider silk: Conversion of waste to valuable product”
2) Poster presentation in the conference “International Conference on Corrosion & Coatings (i3C)” held at CSIR-NML (National Metallurgical Laboratory) Jamshedpur, India from December 07-08, 2022 on the topic “Anticorrosion behaviour of green synthesized fluorescent carbon nanoparticles on Q235 steel”
3) Oral presentation at the conference “3rd International Conference on Current Trends in Materials Science and Engineering (CTMSE)” held at the Institute of Engineering & Management, Kolkata, India from March 11- 13, 2021 on the topic “Facile green synthesis of fluorescent carbon nanoparticles using spider silks”.
4) Paper presented at the conference “Third International Conference on Materials Science and Manufacturing Technology (ICMSMT)” held at the Hotel Aloft, Coimbatore, Tamil Nadu, India from April 15-16 2021 on the topic “Simple and cost-effective synthesis of activated carbon@few layers of graphene composite electrode for supercapacitor applications”.
Seminar/Symposium/Webinar/Workshop/FDP/Orientation/Refresher/Conference etc. Attended [In Detail]
1) Attended a Two-Day Workshop on “Astronomy and Astrophysics” held at Department of Physics & Astronomy, National Institute of Technology (NIT), Rourkela from March 09-10, 2018.
2) Attended TEQIP-III Sponsored Workshop on “Thesis and Manuscript Writing Boot Camp” held at National Institute of Technology (NIT), Rourkela from July 16-20, 2019.
3) Participated in virtual scientific event on “Webinar on frontiers in chemical sciences” held at Department of Chemistry, National Institute of Technology (NIT), Rourkela from July 06-10, 2020.
4) Participated in the “Five Days Workshop cum Hands-on Training on Raman Spectroscopy” held at Department of Physics & Astronomy, National Institute of Technology (NIT), Rourkela from July 24-28, 2023.
Other Details (Academic/Research Related)
1) Two month Summer Internship at National Institute of Science Education and Research (NISER), BBSR in 2017 on the project entitled “Study of Extradimension Using Pythia8 (An Event Generator)”.
Honors and Awards if any
1) Awarded CSIR-UGC National Eligibility Test (NET) for Assistant Professor in 2018.
2) Awarded Graduate Aptitude Test in Engineering (GATE-2018) conducted by Indian Institute of Technology, Guwahati.
3) Recipient of scholarship of merit (INR 48,000 cash award) from Institute of Mathematics & Applications, Bhubaneswar, India in the year 2017.