SATVIK ANSHU | 20ES91R03
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Research Scholar || Energy Science and Engineering

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2021	PhD (Energy Science and Engineering)	IIT Kharagpur	8.57/10
2020	M.TECH	IIT Kharagpur	9.37 / 10
2018	B.TECH	Central University of Jharkhand	8.95 / 10
2013	Higher Secondary	Delhi Public School || CBSE	79.8%
2011	Secondary School Certification	Delhi Public School || CBSE	8.6 / 10

AWARDS AND ACHIEVEMENTS

GATE 2018
Qualified GATE Examination 2018, achieving AIR-347 and GATE Score -429 in ***Engineering Science paper*** with ***Material Science and Polymer*** as subjects.

PROJECTS

M.Tech Project || IIT Kharagpur
Successfully completed the project entitled ***"Tin based hierarchical nanostructures for energy applications"*** from June 2019 to April 2020**.**

PUBLICATIONS

Anshu et al., " Novel bowl like or capped carbon with a low carbon footprint as electrode material in EDLCs", - Carbon Trends- CARTRE-D-23-00127(Under Revision)
Chandra et al., "Flexible supercapacitors for wearable electronics using cost effective composites of layered 2- Dimensional MoS_2-SnS_2 nanoparticles". Submitted (Manuscript reference: NANO-135920)
Chandra et al., " Lattice strain induced d-band modulation in nanosheets of CuxNiCo layered double hydroxides for enhanced water electrolysis"-ACS Catalysis (cs-2023-05001j) (Under review)
Anshu et al., "Au decorated over 2D flakes of SnO_2 nanoparticles as high-performing supercapacitor electrode material", J. Phys. D: Appl. Phys. 56 205501
Chandra et al., "Role of porosity and diffusion coefficient in porous electrode used in supercapacitors – Correlating theoretical and experimental studies", Electrochem. Sci. Adv.2202;1-15.

SKILLS AND EXPERTISE

Personal Summary:
My research focuses on the development of advanced anode materials for sodium-ion batteries, a promising alternative to lithium-ion batteries due to the abundance and affordability of sodium.
With over six years of research experience, I have honed my skills in:
- ***Fabrication of materials:*** **I possess expertise in synthesizing and optimising materials at the nanoscale, tailoring their properties for optimal performance in electrochemical energy storage devices.**
- ***Physiochemical characterization:*** **I am proficient in utilizing various techniques such as XRD, BET, SEM, TEM, Raman, FTIR, UV, and XPS to comprehensively analyse the structural, morphological, and compositional properties of materials.**
- ***Electrochemical characterization:*** **I am well-versed in electrochemical characterization techniques like cyclic voltammetry (CV), galvanostatic charge- discharge (CD), and electrochemical impedance spectroscopy (EIS) to evaluate the electrochemical performance of materials and devices.**
- ***Coin cell fabrication:*** **I have extensive experience working in glove boxes and fabricating CR2032 coin cells for battery testing and evaluation.**

Accomplished software:
MATLAB 2019a, GNU Octave, Origin 8.5, Endnote x7.1, ***WIEN2k***, Material Studio 4.4, MS- WORD 2016, MS-EXCEL 2016, MS-Powerpoint 2016, Basics of C Programming.

CONFERENCES

- **Oral Presentation (Young Scientist Award):** 8th International Conference on Electroactive Polymers 2024, KIIT, Bhubaneswar, India.
- **Oral Presentation:** 15th National Conference on Solid State Ionics (NCSSI-15), University of Delhi, India.
- **Poster Presentation:** E-MRS Spring Meeting (2023), Strausbourg, France.
- **Best Oral Presentation Award:** 1st International Conference on Supercaps and Batteries-2022 (SUPERBATS-2022).
- **Oral Presentation:** 14th National Conference on Solid State Ionics (NCSSI-14), December 16-18, University of Delhi, India.
- **Poster Presentation:** 65th Solid state physics symposium (DAE SSPS 2021), December 15-19, BARC, India.
- **Oral Presentation:** International Conference on Energy and Advanced Material (ICEAM-21), JIIT Noida, October 21-23.
- **Oral Presentation:** JINKS PRANAV'18 NIFFT, Ranchi from Feb 24 to 26,2018.
- **National Student Symposium:** THINK NANO 2016"held at CeNSE, IISC, Bangalore.

COURSEWORK INFORMATION

Salient PG Coursework: Computational Methods for Materials Design, Physics of Surfaces and Interfaces, Experimental Techniques for Functional Materials, Principles of Quantum Devices, Physics of Semiconductor Devices.
Salient UG Coursework: Nanocomposites, Diffraction Techniques, Computational Nanoscience, Modern Microscopic Techniques, Crystallography and Crystal Structure, Introductory Quantum Mechanics, Fundaments of Computer and C programming.

INTERNSHIPS

Summer Training || CSIR-National Metallurgical Laboratory
Ample work on ***"Characterization of DC-magnetic hysteresis and magnetostrictive behaviour of Fe-based amorphous alloys "***and additionally ***carried MATLAB Computations to cancel nodal magnetic effects and fit data correct*** from May to July 2017.
Project Intern || Indian Institute of Technology Patna
Worked on ***"Atomic Force Microscopy Studies of Silver Nanoparticle synthesized by Laser Irradiation"*** from May to June 2016.

POSITIONS OF RESPONSIBILITY

Organising committee member: Successfully organised ***Indo-Belgium workshop on "Upscaling and field scale application of bio-electrochemical systems for waste water treatment and bioenergy recovery"*** on 26th and 27th February 2020.
Teaching Assistant: Assigned as Teaching Assistant in ***"B.Tech Physics Laboratory"*** for the session 2019-20.
M.Tech Desk Member: Worked as an ***"M. Tech desk member"*** of the Department of Physics for the placement session 2019-20.
Activity Prefect: Held position of the ***"Activity prefect"*** for the academic session 2012-13 at Delhi Public School Dhanbad.