

## **Dr. Deepak Kumar Rai**

Assistant Professor(G-II)

**Education:** M.Sc. (IIT Bombay), Ph.D. (IIT Bombay)

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**Areas of Interest:** Opto-electronic properties of 2D materials by employing first-principles calculations, Single-atom catalysts, and Suspended 2D systems using intercalation mechanisms exhibit magnetic behavior.

### **Brief Profile:**

Dr. Deepak Kumar Rai is a distinguished physicist with a robust background in theoretical condensed matter physics, emphasizing computational methods and materials science. He completed his M.Sc. and Ph.D. in Condensed Matter Physics Theory at IIT Bombay, concluding his Ph.D. in August 2019. After his doctoral studies, Dr. Rai served as an Institute Postdoctoral Fellow at the Southern University of Science and Technology (SUSTech), Shenzhen, China, from September 2019 to July 2020, and subsequently at IIT Madras from February 2021 to July 2022. Since August 31, 2024, Dr. Rai has been an Assistant Professor in the Physics Department at JUET, Guna. Before joining JUET, he held a similar position at Chandigarh University, Punjab, from July 2022 to August 2024.

Dr. Rai has significantly contributed to his field, publishing numerous papers in internationally reputed SCI and Scopus-indexed, peer-reviewed journals. He has actively presented his research at prestigious international and national conferences, symposiums, and workshops. Dr. Rai has authored over seven research articles in top-tier journals, including Scientific Reports (Nature), Journal of Physical Chemistry C (ACS), Journal of Physical Chemistry A (ACS), The European Physical Journal D (Springer), Applied Surface Science (Elsevier), and Materials Today: Proceedings. His work continues to advance our understanding of complex physical phenomena.

### **Professional Achievements:**

- JAM (Joint Admission Test for M.Sc.): Achieved an All India Rank (AIR) of 130
- GATE (Graduate Aptitude Test in Engineering): Qualified
- Government Fellowships:
  - Junior Research Fellowship (JRF) & Senior Research Fellowship (SRF) awarded by the Ministry of Human Resource Development (MHRD), Government of India
  - Research Assistantship at IIT Bombay
  - Institute Postdoctoral Fellowship at Southern University of Science and Technology (SUSTech), China, and IIT Madras

### **Publication@JUET**

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