

CURRICULUM VITAE

BASANT ROONDHE

Research Student

Department of Physics,

The Maharaja Sayajirao University of Baroda

Vadodara -390002, Gujarat, India

Email: basantroondhe@gmail.com

Phone no.: [+91-9925453087](tel:+91-9925453087)

Profile: [Research Gate](#), [Google Scholar](#)



PERSONAL DETAILS

Permanent Address: 44, D. K. Honey Homes, Nayapura, Kolar Road
(Residential) Bhopal (M.P.) Pin code - 462042

Present Designation: Department of Physics, Faculty of
Science, The Maharaja Sayajirao
University of Baroda, Vadodara

Date of Birth: 21st January 1991 **Nationality:** Indian

Marital Status: Unmarried

EDUCATIONAL DETAILS

- ✧ Pursuing Ph. D. (Physics) 2016-Present
Title: First Principles Study of Bio-Conjugated Boron Nitride
Nanostructures
Ph.D. Supervisor : Prof. Prafulla Kumar Jha
- ✧ M. Sc. (Physics) 2012-2014
Second Class Barkatullah University, Bhopal
- ✧ B. Sc. (Physics) (Hons.) 2009-2012
Second Class Barkatullah University, Bhopal
- ✧ Higher Secondary Class: CBSE 2009
Second Class
- ✧ Secondary Class: Madhya Pradesh Board 2007
First Class

ACADAMIC ACHIEVEMENTS

- ✚ Project on “Work Function Investigations of Pure and Surface Modified ZnO nanowires towards Oxidizing and Reducing Gases using Kelvin Probe Method” at BARC, Mumbai. (2014)
Under – Dr. D. K. Aswal
- ✚ 1st prize in Project Competition at Institute for Excellence in Higher Education, Bhopal (2012).

SKILLS AND EXPERTISE

- ✚ Programming Languages like Visual Basic, Oracle and FORTRAN.
- ✚ Simulation Packages like Quantum Espresso, Gaussian, VNL and Wannier90.
- ✚ Plotting Packages like GNUplot, Xmgrace, SciDAVis and Origin.
- ✚ Visualization Software like XCrySDen, GaussView.
- ✚ Density functional simulation of Bulk, Nano systems (including 2D system, 1D systems like nanotube, Nanoribbon, 0D quantum dots etc.) of Bio-Conjugated and hybrid systems.
- ✚ Using state-of-the-art density functional theory (DFT), computing properties like electronic, vibrational, magnetic, optical and thermodynamic.

LIST OF PUBLICATIONS

1. Basant Roondhe and Prafulla K. Jha, “Neurotransmitter-Functionalized Boron Nitride Nanoribbons as Biological Cargo Carriers: Analysis by Density Functional Theory”
ACS Applied Nano Materials. DOI:10.1021/acsanm.9b00028.
2. Deepak Upadhyay, Basant Roondhe, Arun Pratap and Prafulla K. Jha, “ Two-dimensional delafossite cobalt oxyhydroxide as a toxic gas sensor”
Applied Surface Science **476**, 198 (2019), DOI: 10.1016/j.apsusc.2019.01.057
3. Basant Roondhe and Prafulla K. Jha, ““Haeckelite” a new low dimensional member of boron nitride family for Biosensing with ultra-fast recovery time: A first principles investigation”
Journal of Materials Chemistry B **6**, 6796 (2018), DOI: 10.1039/C8TB01649F

4. Khushboo Patel, Basant Roondhe, Shweta D. Dabhi and Prafulla K. Jha, "A new flatland buddy as toxic gas scavenger: a first principles study"
Journal of Hazardous Materials **351**, 337 (2018), DOI: 10.1016/j.jhazmat.2018.03.006
5. Shweta D. Dabhi, Basant Roondhe and Prafulla K. Jha, "Nucleobases Decorated Boron Nitride Nanoribbon for Electrochemical Bio-sensing: A Dispersion Corrected DFT Study"
Physical Chemistry Chemical Physics **20**, 8943 (2018), DOI: 10.1039/C7CP08145F
6. Basant Roondhe, Shweta D. Dabhi and Prafulla K. Jha "Sensing properties of pristine boron nitride nanostructures towards alkaloids: A first principles dispersion corrected study"
Applied Surface Science **441**, 588 (2018), DOI: 10.1016/j.apsusc.2018.01.249
7. Basant Roondhe, Deepak Upadhyay, Narayan Som, Sharad B Pillai, Satyam Shinde, Prafulla K Jha; "Structural, Electronic and Dynamical Properties of Curium Monopnictides: Density Functional Calculations"
Journal of Electronic Materials **46**, 1842 (2017), DOI: 10.1007/s11664-016-247-1

FULL PAPERS IN CONFERENCE PROCEEDINGS

1. Anjali Patel, Basant Roondhe and Prafulla K. Jha, Ni doping effect on the electronic and sensing properties of 2D SnO₂. *AIP Conf. Proc.* **1961**, 030039 (2018).

CONFERENCE PRESENTATIONS

- ✚ International conference on Protines, miRNA and exosomes in helth and disease (PREHD2018) at The M. S. University of Baroda, Vadodara (**11-13 Dec, 2018**)
- ✚ 7th International Conference on Perspectives in Vibrational Spectroscopy (ICOPVS-2018) at Bhabha Atomic and Research Centre (BARC) (**25-29 Nov, 2018**)
Title: "Electronic, Phonon and Raman study of 2D PdTe₂: A first principle calculations" (*Poster presentation*)
- ✚ Recent trends in Condensed Matter Physics at Bose Institute, Kolkata (**31Oct- 3 Nov 2017**)

Title: “Effect of Ni doping on the electronic properties of 2D SnO₂” (*Poster Presentation*)

- ✚ National Conference on Recent Trends in Science of Material Science at The M. S. University of Baroda, Vadodara (**28-30 Dec 2015**)

Title: “Work function analysis and gas sensing investigation of ZnO nanowires thin films” (*Poster Presentation*)

- ✚ DAE-BRNS Conference on Organic Devices: The Future Ahead (**3-6 Mar 2014**)

REFERENCES

- ❖ Prof. Prafulla K. Jha (PhD Supervisor)
Department of Physics, Faculty of Science,
The Maharaja Sayajirao University of
Baroda, Vadodara-390002, Gujarat, India.
Phone: +91-265-2795339(O), +91-9825032877(M)
Email: prafullaj@yahoo.com
- ❖ Prof. Sankar P. Sanyal,
Professor of Materials Physics
Dean, Faculty of Science
Chairman, Board of Studies and Research Barkatullah
University, Bhopal - 462026, India
Phone: +91-755-422-4989 (O), +91-9893525991 (M)
E-mail: sps.physicsbu@gmail.com
- ❖ Prof. Arun Pratap
Dean, Faculty of Technology & Engineering
The Maharaja Sayajirao University of Baroda,
Vadodara-390001, Gujarat, India.
Phone: +91-265-2434188 (O), +91-9998799918 (M)
E-mail: apratapmsu@yahoo.com