

## Dr. MANASI ROHAN SARDESAI

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### AREA OF INTEREST

Data science for data analysis and visualization using python, computational simulation and modeling on 2D nano materials using DFT

### SKILL SET

- Data analyst and Data science certificate course in May 2024
- Course attended and received badges from IBM cognitive class powered by Coursera on Data science orientation, Python for Data science, Data analysis with python, Machine learning with Python.
- Python programming: 2022 Complete Python Bootcamp from Zero to hero in Python on Udemy. Received certificate of completion.
- Experience of working on both Linux and Windows platform with research experience in field of simulation and modelling of semiconducting material for gas sensors using the computational resources.
- Knowledge of DFT based packages such as VASP, on a range of Unix and GNU Linux platforms (Both Serial and Parallel).
- Proficiency in LATEX as well as word document editor for research articles for the standard international journals.
- Experience on TCAD for device simulation, worked on simulation in Pspice, Xilinx, MATLAB, designing of schematic using Proteus software, PCB on DIP trace software, keil compiler, Flash magic, 8051, ARM controller.
- Modelling of clusters and surfaces using visualization softwares Xcrysden, VESTA, Chemcraft, Avogadro, etc.

## ACHIEVEMENT

- Best Oral presentation prize in the international conference ICAFM January 2018.
- **University First rank holder during the academic year 2011-2013 for M. Sc. (Electronic Science) at North Maharashtra University. Received gold medal from honorable Dr. Kakodkar and Dr. A. P. J. Abdul Kalam.**
- First rank holder during the academic year 2009-2011 for B.Sc. (Electronic Science)

## PROFESSIONAL SUMMARY

- SPPU Post doctoral fellow in the Department of Physics, S. P. Pune University, Pune. Research area: Computational material science (from October 2021 till date)
- Ph. D. awarded from Department of Electronic Science, S. P. Pune University, Pune in March 2021.
- Project Assistant at the CSIR National Chemical Laboratory (NCL), Pune (from Aug 2019 to March 2020).

## RESEARCH EXPERIANCE

Density functional theory (DFT) based study of the graphene based nanosheets for gas sensing applications which further involved the study of Boron and Nitrogen doped graphene based nanosheet ( $\text{BC}_3$  and  $\text{BNC}_2$ ) and its functionalization. VASP, PARSEC, Quantum Espresso, SIESTA code was used for simulation and modeling of these material.

## PROJECT HISTORY

- Project on "Perspectives of photocatalytic application of phosphorene" from october 2021 to till date (october 2024).
- Project on "Gas sensing properties of 2D graphene based materials : First principle calculations" from August 2015 to March 2021.
- Project on "Electronic and optical properties rare earth doped nanostructures" at the Department of Physics, H. P. T. Arts & R. Y. K. Science College, Nasik 2013 to 2017.
- Simulation of FinFET using Technology CAD (TCAD) simulation and modeling tool in M. Sc. (Electronics).
- A room light controller with visitor controller using 8051 microcontrollers at UG level.

## CONFERENCE HISTORY

- Participated in High performance computing (HPC) for computational fluid dynamics (CFD) applications organized by IIT Bombay and CDAC under National supercomputing mission (NSM) on 17th to 20th May 2022.
- Raman Memorial Conference RMC 2022 as an organizing committee participated in poster presentation in February 2022.

- Poster presentation at the CSIR-National Chemical Laboratory, Pune on Feb 2020.
- Poster presentation at the Department of Physics, S. P. Pune University in Dec 2018.
- Oral presentation at RAMAN conference, Department of physics, S. P. Pune University in Feb 2018.
- Received First prize Oral presentation at the international conference ICAFM 2018 at K. T. H. M. college, Nasik on 13th Jan 2018.
- International Workshop and Conference on Computational Material Physics (IWCCMP 2015) at IIITM-ABV Gwalior from 18th – 21st October 2015.
- International Workshop on Modeling of Material Science (IWMMS) 2014 at Bundelkhand University, Jhansi from 7th -12th March 2014.
- International Conference on Advanced Nanomaterial & Nanotechnology 2013 at IIT Guwahati on 1st -3rd December 2013.
- State level workshop on research methodology at K. K. Wagh Engineering college, Nasik.

## RESEARCH PUBLICATIONS

- [Facile synthesis and first principles calculations of Li-MoS<sub>2</sub>/rGO nanocomposite for high-performance supercapacitor applications.](#)  
Lina N. Khandare, **Manasi S. Mahabal**, Swapnil R. Bhosale, Dattatray J. Late, Anjali Kshirsagar, Nandu B. Chaure  
*Journal of Energy Storage* (2024) 102, 114166.
- “News never sleeps : Impact of robots” In series (Science around us) stdigital.org dated 12th May 2022.
- “How to reduce my carbon footprint?” in series (science around us) on 20th April 2022.
- [Rare Earth Dopant Effects on Optical Properties of Alumina : DFT study.](#)  
**Manasi Mahabal**, Mrinalini Deshpande  
*International Journal of Chemical and Physical Sciences* (2018) 70.
- [Sensing Characteristics of Phosphorene Monolayers towards PH<sub>3</sub> and AsH<sub>3</sub> Gases upon the Introduction of Vacancy Defects.](#)  
**Manasi Mahabal**, Mrinalini Deshpande, Tanveer Hussain, Rajeev Ahuja  
*Journal of Physical Chemistry C* (2016) 120, 20428.
- [Rare earth functionalization effect in optical response of ZnO nano clusters.](#)  
**Manasi Mahabal**, Mrinalini Deshpande, Sudip Chakraborty, Tae Won Kang, Rajeev Ahuja

*European Physical Journal D* (2016) 70, 63.

- Superior sensing characteristics of graphene like boron carbide (BC<sub>3</sub>) monolayer towards selected toxic gases.

**Manasi Mahabal**, Mrinalini Deshpande, Tanveer Hussain, Rajeev Ahuja

*Chem Phys Chem* (2015) 16, 3511.

### ACADEMIC RECORD

Degree Details	University/ Board	Year of Passing	C.G.P.A / %
Ph.D. (Electronic Science)	Pune University	2021	Degree Awarded
M.Sc.(Electronic Science)	North Maharashtra University	2013	7.85 CGPA
B.Sc.(Electronic Science)	North Maharashtra University	2011	89%
H.S.C.	Maharashtra Board	2008	70%
S.S.C.	Maharashtra Board	2006	82%

### HOBBIES & EXTRA CURRICULAR ACTIVITIES

- Listening to Indian classical music, Water colour Painting, Reading books.

### PERSONAL DETAILS

- Date of Birth : 27 MARCH 1991.
- Languages known: English, Hindi, Marathi
- Marital Status : Married

I hereby declare the information mention above is correct.

**Date:**

**Place: PUNE**

**Manasi Rohan Sardesai**