



Dr. Trupti K Gajaria,

Assistant Professor, Physics

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Education

PhD – The M S University of Baroda, Vadodara, Gujarat (2020)

Thesis titled “Energetics, Structural and Optoelectronic Properties of III-V Semiconductor Heterostructure Nanowires”

MSc – Dept. of Physics, M K Bhavnagar University, Bhavnagar, Gujarat (2012)

BSc – Sir Prabhashankar Pattani Institute of Science, M K Bhavnagar University, Bhavnagar, Gujarat (2010)

Key Skills

Dr. Trupti K Gajaria can provide comprehensive solutions in the following areas:

1. Prediction of a material’s energetics using density functional theory (DFT)
2. Understanding of carrier dynamics in a material at atomic scale using DFT

Background

Joined GSFC University on August 9, 2021

Scholarship and Accomplishments

Dr. Trupti K Gajaria was awarded a national scholarship from the Department of Science & Technology (DST, India) under the scheme DST WOS-A in 2017. The research work focused on the ground state properties of III-V nanowires under pristine and heterostructure configurations. The prime objective of the study was to unravel the carrier dynamics of the materials under bulk and confined conditions, which plays a crucial role in materials under nanometer scale.

Prior to joining GSFC University, Dr. Gajaria had a teaching experience of more than 05 years. Previously she has served as an assistant professor at Shree Swaminarayan Naimisharanya College of Science, M K Bhavnagar University, Bhavnagar, Gujarat for five academic years and as a visiting

lecturer at Sir P P Institute of Science, M K Bhavnagar University for 1.5 years. Presently, she is working as an assistant professor in physics at GSFC University from August 2021.

She teaches physics to science & engineering students enrolled under B.Sc. and B.Tech programs at GSFCU. Also Dr. Gajaria has taught application of computers in chemistry to BSc and MSc Chemistry students. This subject covers fundamentals of computer hardware/software, programming languages like C and a part of digital electronics. Dr. Gajaria has mentored two dissertation students enrolled in MSc Chemistry program. The objective of the dissertation study was to equip students with coding skills and teach them how to utilize computational chemistry as a tool for predicting ground state properties of novel material like Perovskites and Zirconium based MXene materials.

Dr. Trupti Gajaria has also served GSFC University as a student industrial internship coordinator for the School of Science in the academic year 2021-'22. Further Dr. Gajaria believes in promoting and encouraging students to appear in various state/national level examinations. One of the students from BSc Industrial Chemistry, Semester-IV (2022-'23), Mr. Meet Joshi, received a national level scholarship from Indian Academy of Sciences (IAS) for performing research in the field of developing nanofertilizers. Mr Meet will receive a scholarship of 12,000/- per month + TA/DA + Accommodation for pursuing his research work under this scholarship (July 2023-August 2023).

Most Three Notable Publications

1. Trupti K. Gajaria, Shweta D. Dabhi, Prafulla K. Jha, "*ab initio* Energetics and Thermoelectric Profiles of Gallium Pnictide Polytypes", Scientific Reports, 5884, 2019.
2. Trupti K Gajaria, Basant Roondhe, Shweta D Dabhi, Piotr Śpiewak, Krzysztof J Kurzydłowski, Prafulla K Jha, "Hydrogen evolution reaction electrocatalysis trends of confined gallium phosphide with substitutional defects", International Journal of Hydrogen Energy, 45,2020.
3. Trupti K Gajaria, Darshil Chodvadiya, Prafulla K Jha, "Density functional theory investigation of thermal conductivity in α -CN and α -CP monolayers: Implications for thermal management of electronic devices", ACS Applied Nano Materials, 4, 2021.