Department of Physics

Uka Tarsadia University

Name	**Dr. Bhumika K. Sharma** 
Qualification	MSc, PhD
Designation	Assistant Professor
Date of Joining	03/07/2023
Date of Birth	24/10/1990
Area of Interest	Nanotechnology and Material Science

Career Profile

Organization/ Institution	Designation	Duration	Role
Indian Institute of Teacher Education, Gandhinagar, Gujarat	Assistant Professor	August 2013 to Dec 2015	UG teaching
SNPITRC Bardoli	Assistant Professor	June 2022-August-2022	UG teaching
UKA Tarsadia University	Assistant Professor	July 2023 to present	UG/PG Teaching

Teaching Experience (Subjects/Courses Taught)

Year	Subjects	UG/PG/Programme
2013-15	Nanotechnology, Electronics, Mathematical Physics and Statistical Physics.	UG
2022-2023	Engineering Physics, Condense matter Physics, Optics, Nanophysics, Experimental Techniques, and Electronics, Classical Mechanics.	UG/PG

Skill-Set and Subjected techniques

- Gaussian 09/03/98W and GAMESS – US for optimization of atomic geometries.
- GaussView for designing and visualization.
- MS Office,
- Origin 09
- Fortran
- X-Ray Diffraction
- Vibrating Sample Magnetometer
- Scanning electron microscope
- Dynamic light scattering
- Spin coater, Autoclave

- UV-Vis and FTIR spectroscopy

Conferences/ Seminar/ Workshop/ Training attended			
Title	**Organization**	**Place**	**Date**
Science & Technology of Advanced Materials (STAM 2015) Science & Technology of Advanced Materials (STAM 2015)	Department of Physics SVNIT	Surat , Guajrat	21 -23 August 2015
Solar Photovoltaic Energy: Contemporary Technologies & Recent Advances(SPECTRA 2016)	Department of Physics SVNIT	Surat , Guajrat	8 -12 October 2016
Advanced Scientific tools for materials and nuclear technology (ASTMNT 2016)	Department of Physics SVNIT	Surat , Guajrat	2-6 May 2016
International Conference on Condensed Matter Physics & Applied Physics Bikaner,2017	Engineering College Bikaner	Bikaner, Rajasthan	22-25 November 2017
International Conference on Advanced Materials ICAM 2019	Department of Physics, Nirmalagiri College	Kannur, Kerala	12-14 June 2019
International Conference Systems of Processes in Physics, Chemistry and Biology 2018, Assam	Department of Physics, Assam University, Silchar	Assam	1-3 March,2018

Paper Presented		
Year	**Title**	**Reference**
2017	Antimicrobial activity of ZnO nanoparticles, Synthesis and Physicochemical Characterization	International Conference on Condensed Matter Physics & Applied Physics ,2017
2018	Toxicity of Polyhalogenated dibenzo-p-dioxins (PHDDs) under Density Functional Investigation **(POSTER)**	International Conference Systems of Processes in Physics, Chemistry and Biology 2018, Assam
2019	One-Step Synthesis of CuO Nanoparticles using Chemical Precipitation Method (**POSTER)**	International Conference on Advanced Materials ICAM 2019

Publications			
Year	**Title**	**Reference**	**Publication Type**
2022	Biological activity of some thiazolyl-thiadiazines as BACE-1 inhibitors for Alzheimer's disease in the light of density functional theory based quantum descriptors	**J. Phys. Org. Chem.**, e4444.	International

2022	Green Synthesis of Dense Rock MgO Nanoparticles Using Carica Papaya Leaf Extract and its Shape Dependent Antimicrobial Activity: Joint Experimental and DFT Investigation.	**J. Clust. Sci**. *33*(4), pp.1667-1675	International
2021	Green Synthesis of Triangular ZnO Nanoparticles Using Azadirachta indica Leaf Extract and Its Shape Dependency for Significant Antimicrobial Activity: Joint Experimental and Theoretical Investigation	**J. Clust. Sci**. pp.1-14	International
2021	Synthesis of Ciprofloxacin Drug Capped Silver Nanoparticles and their Antimicrobial Activity: A Joint Spectrophotometric and Density Functional Investigation	**J. Clust. Sci**. *32*, pp.1575-1584.	International
2019	Biological Activity of Some ACAT Inhibitors in the Light of DFT based Quantum Descriptors	**Struct. Chem. (Springer)** 30 (2019) 2379–2387	International
2018	CoTetraphenylporphyrin (Co-TPP) in TM-TPP (TM= Fe, Co, Ni, Cu and Zn) series: A New Optical Material under DFT	J. Mol. Model. (Springer) 24 (2018) 239(1)-239(7)	International
2018	Synthesis, Physicochemical Characterizations and Antimicrobial Activity of CuO Nanoparticles,	**Curr. Nanomater**. 3 (2), 121-125	International
2018	Toxicity of Polyhalogenated Dibenzo-p-Furans in the Light of Nucleic Acid Bases Interaction	**Comp. Biol. Chem. (Elsevier Science)** 76 (2018) 225-231.	International
2018	Green Synthesis of CuO Nanoparticles using Azadirachta Indica,	**Mater. Res. Express (Springer)** 5 (2018) 095033	International
2018	Synthesis and Physicochemical Characterization and Antimicrobial Activity of ZnO Nanoparticles,	**AIP Conf. Proc.** 1953 (2018) 030080	International

Honors and Awards

Year	**Title**	**Awarding Body**

September 2015	Ph.D. Scholarship under TEQIP II, SVNIT SURAT	TEQIP II, SVNIT SURAT
April 2017	NATIONAL FELLOWSHIP under UGC Scheme	UGC

Research Project

Period	Sponsoring Organization	Title of Project
2010- 2011	Nuclear Power Corperation Of India Limited, Kakrapar (NPCIL)	*On Channel Temperature Monitoring System* Mr. M. V. Parikh, Reactor Physics Department Detailed study of the channel temperature of Nuclear reactor using computational Physics. (Programming language; *Fortran and c language*) and controlling the tube channels temperature. The channels were studied in order to control the overall heating of the reactor and control the reactions.
2011-2012	Bhabha Atomic Research Center (BARC)	*On Parametric Characterization of a Line Tunable Cw CO_2 Laser* Dr. Dhruba. J. Biswas, Head, Infrared Laser Section, Laser and Plasma Technology Division, BARC Experimental study of Cw CO_2, laser assisted nozzle separation (LANS) for isotope enrichment which combines the laser selective excitation process with the conventional aerodynamic isotope separation scheme that is known to greatly enhance the separation efficiency.
2017-2019	Sardar Vallabhbhai National Institute Of Technology (SVNIT)	*BACE-1 inhibitors for Alzheimer's disease using DFT based quantum descriptor.* (Dr Debesh R Roy, APD,SVNIT) A systematic investigation on developing quantum chemical descriptors on understanding biological activity (pIC_{50}) of a series of 10 thiazolyl-thiadiazines (ID-01 to ID-10) as Beta site amyloid precursor protein cleaving enzyme 1 (BACE-1) protein inhibitors for Alzheimer diseases, under density functional theory. The interactions between inhibitors and model biomolecule are studied in terms of charge and energy transfer, where the target biomolecule at the host BACE-1 protein is identified from the family of 20 amino acids, which are universal to all living organisms.

Ph.D Research Topic: Bio- Green and/or chemical synthesis and antimicrobial activity of metal/metal oxide nanoparticles

M.Sc Research Topic: Toxicity of Nanoparticles

Academic activities/Public Service/ University Service

- Member of various club and committees.
- B-Tech Subject Coordinator
- Member of dance club -2023-24