



Dr. Atul Singh Bharadwaj

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Prayagraj

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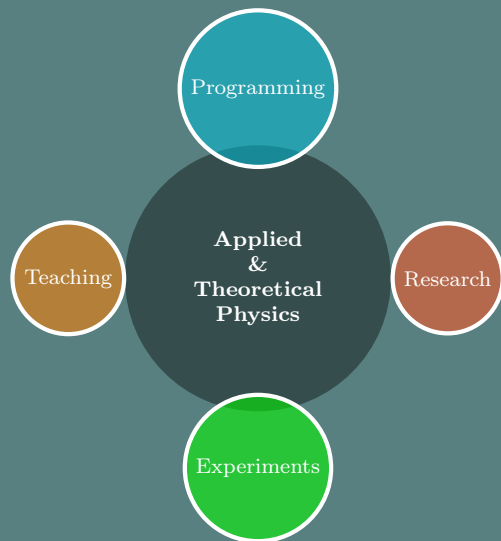
TEACHING COURSES

UNDER-GRADUATE COURSES

- Statistical Mechanics
- Digital Electronics

POST-GRADUATE COURSES

- Statistical Mechanics
- Microwave Electronics
- Microprocessors
- Programming for Numerical Methods



WORK EXPERIENCE



ASSISTANT PROFESSOR (LEVEL II) (Jan 2022 - Continue)

DEPARTMENT OF PHYSICS, CMP DEGREE COLLEGE,
UNIVERSITY OF ALLAHABAD · Prayagraj, UP, India



ASSISTANT PROFESSOR (LEVEL I) (Jan 2018 - Jan 2022)

DEPARTMENT OF PHYSICS, CMP DEGREE COLLEGE,
UNIVERSITY OF ALLAHABAD · Prayagraj, UP, India



POST-DOC FELLOW (Jan 2018 - Jan 2017)

TIFR, HYDERABAD · Telangana, India

Title:- *Density Wave Theory for Amorphization and Plastic Deformation of Crystals.*

Mentor: PROF. SURAJIT SENGUPTA

RESEARCH PROJECT



UGC STARTUP GRANT (July 2019 - March 2024)

Title- *Crystal - Crystal transition and separation of binary mixtures: A density functional approach*

Institute- CMP College, University of Allahabad, Prayagraj

Funding Agency- University Grants Commission, New Delhi

Scheme- The Startup Research Grant

Budget- INR 10 Lakhs

EDUCATION



DOCTOR OF PHILOSOPHY (PHD) (2017)

DEPARTMENT OF PHYSICS, BANARAS HINDU UNIVERSITY ·
Varanasi, UP, India

Title:- *Theory for freezing transition: Density functional Approach.*

Supervisor: PROF. YASHWANT SINGH and PROF. JOKHAN RAM



MASTER OF SCIENCE (MSc) (2009)

DEPARTMENT OF PHYSICS, UNIVERSITY OF ALLAHABAD ·
Prayagraj, UP, India



BACHELOR OF SCIENCE (BSc) (2007)

FACULTY OF SCIENCE, UNIVERSITY OF ALLAHABAD · Prayagraj,
UP, India

Subjects: Physics, Chemistry, Mathematics



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TECHNICAL SKILL

PROGRAMMING

FORTAN ●●●●●●●●●●
C++ ●●●●●●●●●●
Python ●●●●●●●●●●

PARALLEL COMPUTING

OpenMPI ●●●●●●●●●●
MPI ●●●●●●●●●●

SIMULATION

MD Simulation ●●●●●●●●●●
MC Simulation ●●●●●●●●●●
GROMACS ●●●●●●●●●●
LAMMPS ●●●●●●●●●●

OFFICE

L^AT_EX ●●●●●●●●●●
Open Office ●●●●●●●●●●
Excel ●●●●●●●●●●
MS Office ●●●●●●●●●●

LANGUAGES

English Working knowledge
Hindi Mother tongue

RESEARCH INTEREST

Classical Density Functional Theory

Glass Transitions

Theory for Phase transitions

Integral Equation Theory

Structure & properties of condensed matter phases

Pair correlation functions in liquid and crystal

RESEARCH PUBLICATIONS

2023

Polymer translocation and nano-pore sequencing: A review of advances and challenges.

INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES **24**, 6153



Swarn Lata Singh, Keerti Chauhan, Atul S. Bharadwaj, Vimal Kishore, Peter Laux, Andreas Luch, Ajay Vikram Singh.

2022

Self-Assembly of DNA-Grafted Colloids: A Review of Challenges.

MICROMACHINES **13**, 1102



M Dwivedi, SL Singh, Atul S. Bharadwaj, V Kishore, AV Singh.

2017

Density functional theory for fluid-solid and solid-solid phase transitions.

PHYS. REV E. **95**, 032120



Atul S. Bharadwaj and Yashwant Singh.

2015

Fluid-solid transition in simple systems using density functional theory.

THE JOURNAL OF CHEMICAL PHYSICS, **143**, 124503



Atul S. Bharadwaj and Yashwant Singh.

2014

Integral equation theory for pair correlation functions in a crystal.

THE JOURNAL OF CHEMICAL PHYSICS, **140**, 211103



Anubha Jaiswal, Atul S. Bharadwaj, and Yashwant Singh.

2013

Correlation functions in liquids and crystals: Free-energy functional and liquid-to-crystal transition.

PHYS. REV E. **88**, 022112



Atul S. Bharadwaj, Swarn L. Singh, and Yashwant Singh.

2011

Free-energy functional for freezing transitions: Hard-sphere systems freezing into crystalline and amorphous structures.

PHYS. REV E. **83**, 051506



Swarn L. Singh, Atul S. Bharadwaj, and Yashwant Singh.