



# DEPARTMENT OF PHYSICS

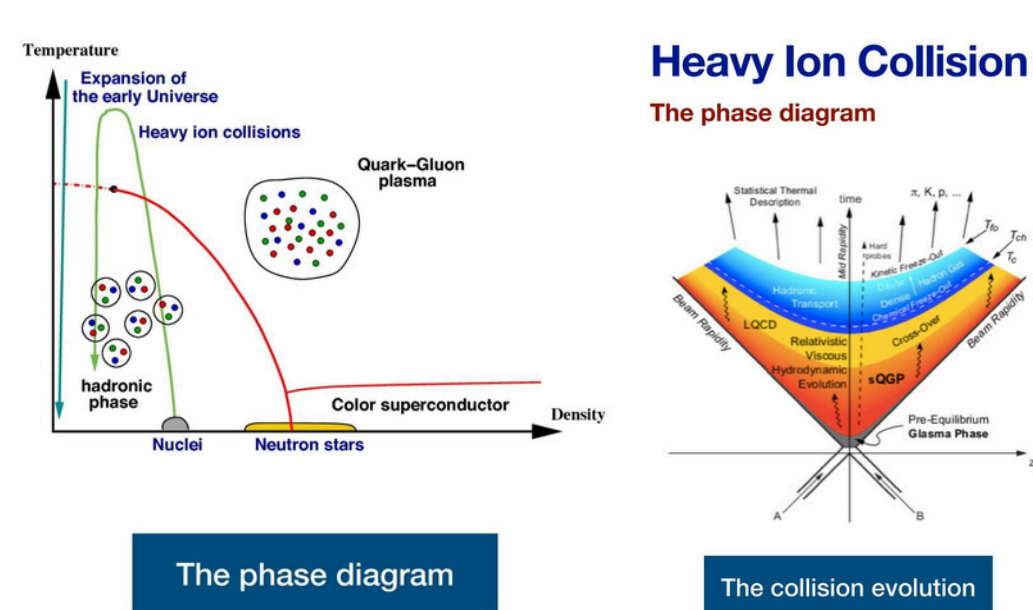
(DST-FIST ASSISTED)  
UNIVERSITY OF KASHMIR



## RESEARCH AREAS

### High Energy Physics

The quest for inquiring high energy heavy ion collisions has grown significantly in recent years. These investigations have expanded our knowledge about the QGP medium and hence the early universe. Research in this branch of physics helps to explore the dynamics of heavy ion collisions.



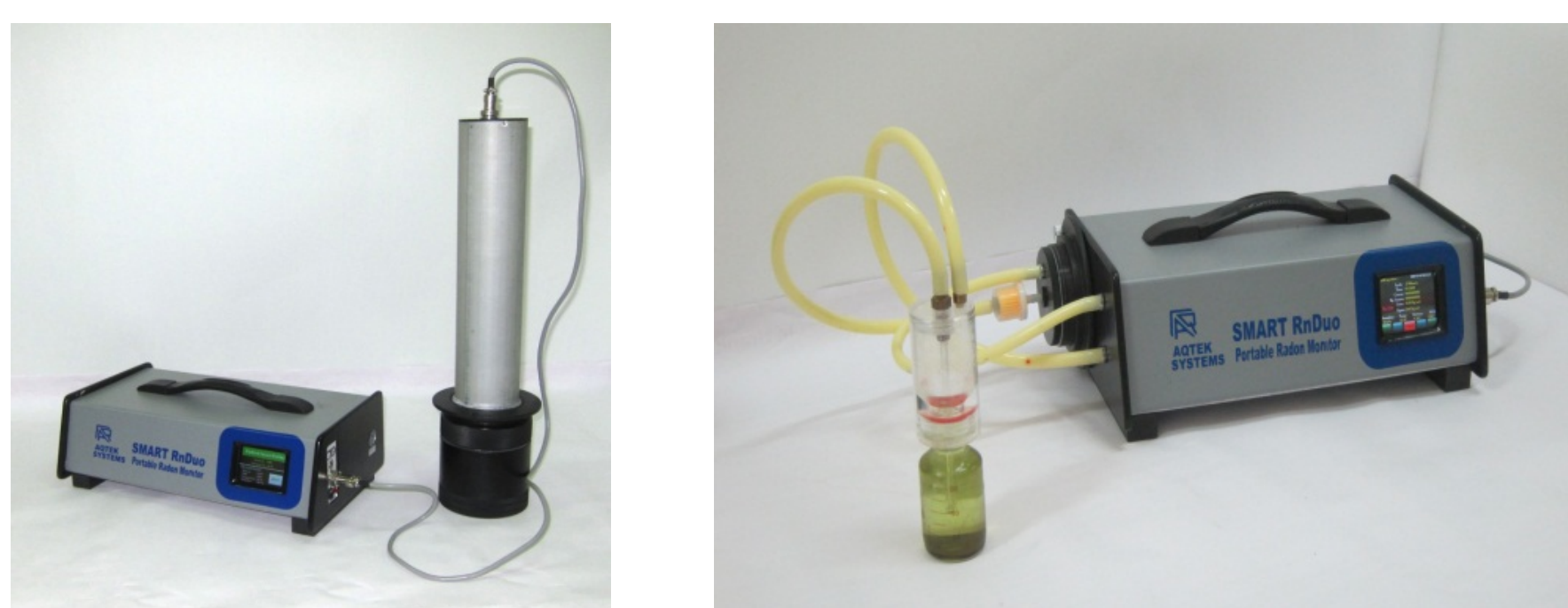
### Nanophysics

Growth/preparation & Characterization of nanoparticles and nanocomposite for various applications particularly in Environmental Remediation, Healthcare Solutions and Energy Applications



### Radiation Physics

The Smart Rn-Duo, developed by BARC Mumbai, is a compact, advanced device used for the precise estimation of radon concentration in water and soil gas. It aids in radiation monitoring, environmental studies, and geophysical research, ensuring accurate radon assessment for health and safety evaluations.



### Atmospheric Physics

Airglow, Upper Atmospheric Dynamics, Atmospheric Gravity Waves, Lower Atmospheric Convection, Traveling Ionospheric Disturbances, Plasma Depletions, and Plasma Blobs.



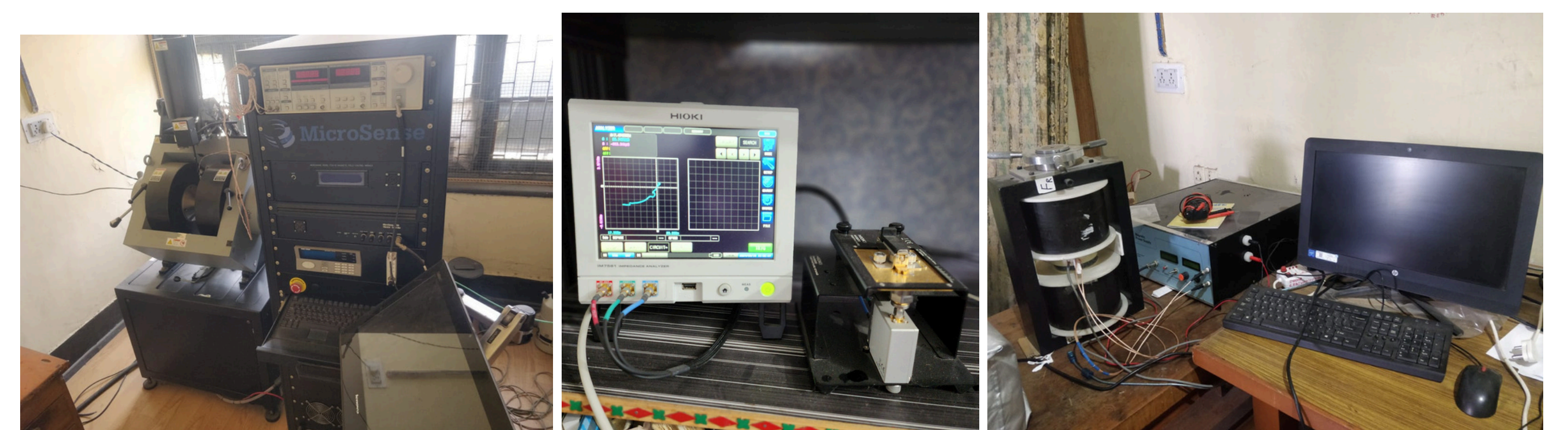
### Quantum Dynamics

Study of Decoherence and Entanglement  
Non Equilibrium Theory  
Quantum Measurement and Control  
Quantum Teleportation



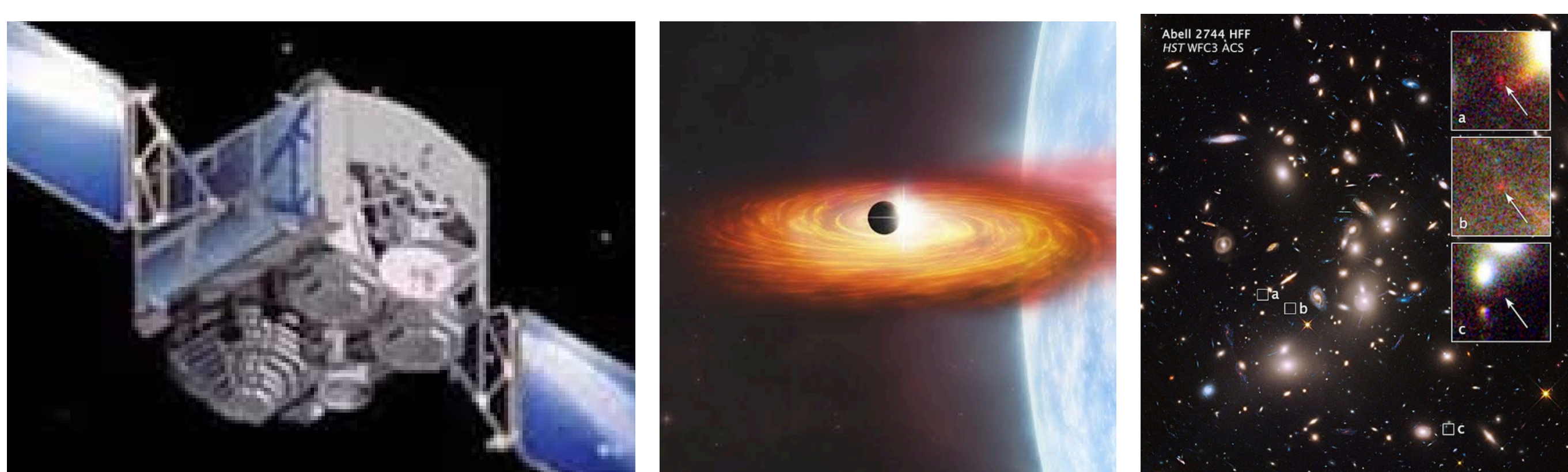
### Solid State Physics

Synthesis & Characterization of MOFs and multiferroics for various applications.



### Astrophysics

The Astrophysics Research Group investigates active galactic nuclei, galaxy clusters, and X-ray binaries, integrating theoretical modeling with observational analysis to explore their physical properties.



### Nuclear Physics

Nuclear structure physics explores the properties and behavior of atomic nuclei, focusing on their shapes, energy levels, and interactions. It examines the underlying forces governing nucleons (protons and neutrons) using theoretical models like the shell model, mean-field approaches, and beyond-mean-field methods.

