



Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, sponsored four-day workshop on **Frontiers of Precision Sensing: From Quantum Technologies to Fundamental Physics**

November 25-28, 2026

Organized by

Department of Physics (UG & PG), Prabhat Kumar College, Contai, West Bengal, India



Organizing Committee

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Dr Amit Kr. De, Principal, P. K. College, Contai

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Anup Kr Das, Dr Md. Ali Asgar, Dr Sanhita Modak, Dr Asim Guchhait,
Munmum Midya Chowdhury, Dr. Bivash Majumder

*This workshop is intended for 3rd and 4th year B.Sc. and M.Sc. students of Physics
with some 1st year Ph.D. students of related topics*

**Limited travel support and accommodation may be provided,
depending on the availability of funds.**

For any query: Email to: iucaapkcworkshop@gmail.com



[Registration Link](#)

RESOURCE PERSONS

Prof. Subhadeep De, IUCAA, Pune

Prof. Sonjoy Majumdar, IIT KGP

Prof. Ananda Dasgupta, IISER, Kolkata

Prof. Sabyasachi Mishra, IIT KGP

Prof. Syed Minhaz Hossain, IEST, Shibpur

Dr. Samudra Roy, IIT KGP

IMPORTANT DATES

Registration Deadline: 5 October 2026, 11.59 pm

Intimation to Selected Participants: 9 October 2026

INTRODUCTION

Quantum science is entering an exciting new era, in which the principles of quantum mechanics not only deepen our understanding of nature at its most fundamental level but also underpin a new generation of powerful emerging technologies. Concepts such as superposition, entanglement, quantum measurement, and coherence now drive quantum computing, secure communication, precision timekeeping, and advanced sensing, and modern experimental and computational tools are making these ideas increasingly accessible beyond the traditional boundaries of quantum physics. The workshop 'Frontiers of Precision Sensing: From Quantum Technologies to Fundamental Physics' introduces these developments in an intuitive, engaging way for students at a key stage of their academic journey through lectures, discussions, and hands-on activities that connect foundational quantum ideas with contemporary cutting-edge research and real scientific applications.

OBJECTIVES

This workshop is designed to

- To build a clear conceptual understanding of important quantum phenomena, including superposition, quantum states, entanglement and Bell's non-locality, and their role in modern physics.
- To introduce new areas such as quantum computing, quantum teleportation, quantum key distribution, quantum sensing and atomic clocks, and their connection with fundamental physics.
- To provide participants with hands-on exposure to quantum circuits, two-qubit states and gates, quantum processor architecture, Qiskit and Python, along with introductory quantum algorithms and the Variational Quantum Eigensolver.
- To encourage students to explore higher studies and research in quantum science and related interdisciplinary fields, while developing scientific curiosity through interaction with researchers and experts.

FORMAT

This four-day, in-person workshop will include:

- Expert lectures
- Guided scientific discussions
- Hands-on training sessions
- A short project component with participant presentations

Prior familiarity with Python programming is required. Participants are requested to bring their own laptops.

IUCAA, Pune: IUCAA has one of the most modern facilities for research and development in the areas of astronomy and astrophysics, with the objective of promoting nucleation and growth of active research in the areas of Astronomy and Astrophysics at Indian Universities. IUCAA is one of the nodal agencies for the Laser Interferometer Gravitational-Wave Observatory that is approved to be built in India (LIGO-India), participating in various other Mega-science projects such as the Thirty Meter Telescope (TMT), the Southern African Large Telescope (SALT). Square Kilometre Array (SKA), the Large Synoptic Survey Telescope (LSST) Rubin Observatory, as well as National Mission projects of India.

Department of Physics, P. K. College, Contai: The Department of Physics at Prabhat Kumar College was established in 1947 with the I.S.C. course. The Honours programme was introduced in 1963, followed by the P.G. programme in 2006. The department has consistently maintained a strong academic tradition and serves students from Contai and neighbouring districts. Since 2019, Ph.D. programmes have been conducted through the College's Research Centre of Natural Sciences and Research Centre of Humanities and Social Sciences under the aegis of Vidyasagar University.