ALUMNI ASSOCIATION
Institute of Physics

ALUMNI DAY CELEBRATION 2026

The voices that echo

09:00 AM - 10:00 AM	:	Registration & Breakfast
10:00 AM - 11:15 AM	:	Introductory Session & Director's Address
11:15 AM - 11:30 AM	:	Tea Break
11:30 AM - 12:15 PM	:	Invited Talk 1 - Prof. Prasanta K. Panigrahi
12:15 PM - 01:00 PM	:	Invited Talk 2 - Prof. Suresh Kumar Patra
01:00 PM - 02:30 PM	:	Lunch Break
02:30 PM - 03:15 PM	:	Invited Talk 3 - Dr. Ashutosh Rath
03:15 PM - 04:00 PM	:	Fun Activities
04:00 PM - 04:30 PM	:	Tea Break & Group Photo
04:30 PM - 05:00 PM	:	G. B. Meeting, Interaction, Vote of Thanks
05:00 PM - 06:00 PM	:	Cultural event followed by High Tea

Prof. T. Pradhan lecture hall

September 3, 2026

Institute of Physics (IOP) Bhubaneswar, India

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ATOMS IN THE SERVICE OF THE NATION

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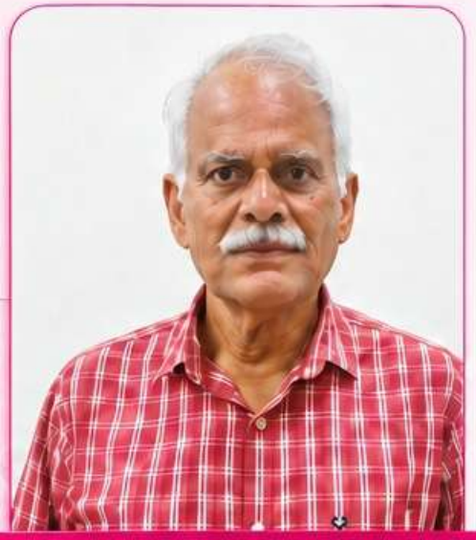
ALUMNI DAY CELEBRATION

Exploring Ideas. Advancing Knowledge. Inspiring Discoveries.

You are cordially invited to a special talk

September 3, 2026



INVITED SPEAKER

Prof. Prasanta Kumar Panigrahi

SOA University, Bhubaneswar

TITLE OF THE TALK: Quantum computing: Recent developments and future outlook

ABSTRACT

Quantum computing has made rapid strides, with significant progress in recent times. Starting from puzzles and paradoxes, quantum science is progressing fast into the domain of technology. The major thrust has been secure communication, with the classical cryptographic protocols becoming prone to attacks from quantum computing platforms. We describe the historical developments in quantum computing and quantum information and their recent contributions to technology. The thrust areas are highlighted, from the Indian as well as global perspective.

TIME
11:30 AM to 12:15 PM

VENUE
Prof. T. Pradhan Lecture Hall (Block – A)

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INVITED SPEAKER

Prof. Suresh Kumar Patra
SOA University

TITLE OF THE TALK: From Atoms to Nation Building: India's Nuclear Energy Mission

ABSTRACT

In the present-day world, over a billion of people do not have access to safe drinking water. Billions of people lack adequate sanitation facilities. One in 3 people have no access to electricity and another 1 in 3 have only limited access. This leads to massive poverty and inequality. The challenge is not before developed countries, but before the developing countries. From India's point of view, the situation is not very good: (i) population is growing rapidly (ii) for Viksit Bharat energy demands are enormous (iii) we need to produce it without harming environment. If current practices continue, population on earth will have a dramatic impact, resulting in very unpleasant consequences. The emission of CO_2 and SO_2 will cause global warming. This warming will cause a rise in sea-level and climate instability, as well as outbreaks of epidemics. In the present talk, I will discuss various alternatives of energy production in India's context. One of them is the Nuclear Energy and I will discuss the Nuclear Program adopted by India for a sustainable energy production, which is needed for a Viksit Bharat aiming to 2047.

KEYWORDS:

- 2D heterostructures
- Surface and interface
- Photodetectors
- Electron microscopy

TIME
12:15 PM to 01:00 PM

VENUE
Prof. T. Pradhan Lecture Hall
(Block – A)

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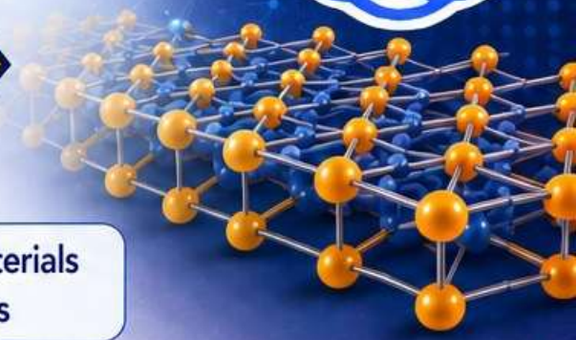


September 3, 2026

INVITED SPEAKER

Dr. Ashutosh Rath

CSIR-IMMT, Bhubaneswar

TITLE OF THE TALK: Two-Dimensional (2D) Layered Materials for Next -Generation Electronics

ABSTRACT

Device miniaturization is a demand of hour, but it also raises concerns regarding materials scarcity. Two-dimensional (2D) materials, with multifunctional capabilities, have emerged as a potential solution to address these concerns. In particular, Transition Metal Dichalcogenides (TMDs), have garnered significant attention from both the scientific community and industry due to their immense potential in device applications. Monolayer TMDs, characterized by a direct band gap, offer tunability based on layer number and manifest polytypic behaviour, rendering them highly suitable for optoelectronic applications.

However, designing such 2D materials requires advanced structural control, such as creating heterostructures or inducing different phases through defects, doping and interlayer twisting, to tailor their physical and chemical functionalities. Here, we focus on developing multifunctional 2D materials through both heterostructure construction and controlled phase modulation.

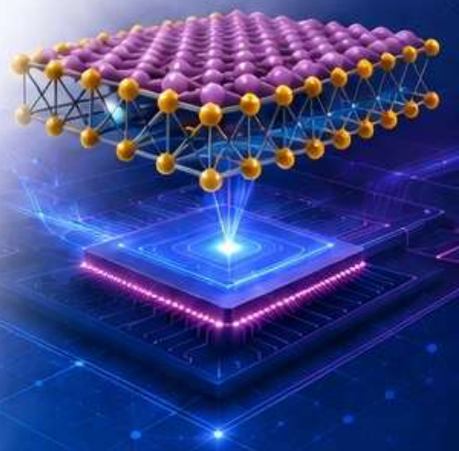
Interfacial structure emerges as the primary determinant of band alignment, charge-transfer dynamics, and overall performance. To explore this, a layered MoS_2–MoS_2 heterostructure was synthesized using a chemical vapor deposition (CVD) process, wherein α-MoO_3 was initially grown through a vapor trapping technique and subsequently sulfurized. Detailed structural and spectroscopic characterizations have been performed to reveal well-defined interface formation and investigate the interfacial dynamics.

Furthermore, we synthesized high-quality monolayer MoS_2 with tunable 1T and 2H phase. The introduction of the metallic 1T phase into semiconducting 2H-MoS_2 increased carrier concentration and charge mobility, leading to higher current densities and enhanced optoelectronic response.

Overall, this seminar highlights how interface and phase engineering in 2D materials can significantly enhance structural, optical, and electronic functionalities, providing a versatile platform for next-generation optoelectronic and energy devices.

KEYWORDS:

- 2D heterostructures
- Surface and interface
- Photodetectors
- Electron microscopy



TIME
02:30 PM to 03:15 PM

VENUE
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