

अनुसंधान नेशनल रिसर्च फाउंडेशन  
Anusandhan National Research Foundation

**ANRF (erstwhile SERB)**

**Faculty Development Program and Student  
Workshop on**

## **Advanced Nanomaterials and Nanodevices for Electronic, Optoelectronic, and Photonic Applications**

**(Online Mode)**

**(20<sup>th</sup> - 24<sup>th</sup> March 2026)**



**Coordinators:**

**Dr. Sumit Saha**

**Dr. Rashmi Achla Minz**

**Department of Electronics and  
Communication Engineering,  
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Rourkela-769008, Odisha, India**

**Technically Co-sponsored by:**



**About Institute:** NIT Rourkela is one of the country's premier national-level institutions for technical education and is funded by the Government of India. The government of India has elevated the Regional Engineering College, Rourkela to a deemed university under the name of National Institute of Technology Rourkela. Please visit <https://www.nitrkl.ac.in/> to know more about NIT Rourkela.



**About Department:** The Department of **Electronics and Communication Engineering** was established with the vision to become a nationally acclaimed department of higher learning that will serve as a source of knowledge and expertise for society. The department offers various UG and PG programs with the mission to advance and spread knowledge in the areas of Electronics, Communication, Instrumentation, Signal Processing, Microwave and Radar, and VLSI leading to the creation of wealth and welfare of humanity. The department also offers Ph. D. for regular as well as sponsored candidates. The faculties of the EC department are handling several externally funded research projects. Please visit <https://www.nitrkl.ac.in/EC/> to know more about the department.

### **About the Workshop:**

The workshop titled “Advanced Nanomaterials and Nanodevices for Electronic, Optoelectronic, and Photonic Applications” aims to provide a comprehensive understanding of emerging nanomaterials, nanostructures, and innovative device concepts. It will focus on modeling and simulation of advanced nanomaterials and nanodevices, as well as their applications across electronics, optoelectronics, and photonics. Topics covered in the workshop will include two-dimensional (2D) materials, their heterostructures, their applications in photodetection and sensing, defect modeling in 2D materials, 2D field-effect transistors (FETs), semiconductor nanostructures for optoelectronic applications, quantum dot (QD) solar cells, functionalized optical fiber-based sensors, photonic crystals and their applications, single photon sources, integrated photonics, quantum photonics as well as signal conditioning and interfacing circuits for optical sensors. The primary emphasis will be on nanomaterials and nanodevices, with a focus on their applications and research opportunities. The course will begin with interactive presentations by academicians and scientists from India and abroad, followed by training on material and device simulation. Participants can expect to gain valuable insights into advanced materials and devices, with a particular focus on their applications in future disruptive technologies across electronics, optoelectronics, and photonics.

### **Workshop objectives are :**

- Enhance subject expertise through interactive presentations and training.
- Provide an in-depth understanding of emerging materials and innovative device concepts in the fields of electronics, optoelectronics, and photonics.
- Encourage participants to undertake impactful research in electronics, optoelectronics, and photonics.
- Facilitate networking opportunities among participants, promoting collaboration and knowledge exchange.

## Topics to be covered (tentatively):

### Nanomaterials and Nanodevices:

- Two-dimensional (2D) materials
- 2D van der Waals Heterostructure
- Defect in 2D materials
- 2D material photodetectors
- 2D material FETs
- Quantum dots (QDs)
- Photonic crystal
- III-V material optoelectronic devices
- Third generation solar cells
- Quantum cascade detector
- Quantum sensors

### Modeling and Simulation:

- 2D material modeling and simulation for electronic, and optical properties.
- Simulation of 2D material based devices.
- Modeling and simulation of photonic crystal

### Semiconductor Process and Manufacturing:

- Fabrication of III-V and 2D materials for optoelectronic applications.
- Integrated circuit design for sensor signal acquisition and processing.

### Applications:

- Photodetection
- Sensing
- Lasing
- Solar Cells

### Target Participants:

UG/PG/MS students, Ph.D. students/research scholars /project students, staff/faculty members, and industry professionals working/planning to work in the area of nanomaterials and nanodevices for electronic, optoelectronic, and photonic applications.

*Preferences will be given to the faculty members.*

### Important Dates:

Registration Deadline	17 <sup>th</sup> March 2026
Confirmation to Participants by Email	18 <sup>th</sup> March 2026
Commencement of Workshop	20 <sup>th</sup> March 2026 (Online through MS Team)

## Speakers (Tentative):

- Prof. Andreas Schell, Johannes Kepler University Linz
- Prof. Debdatta Ray, IIT Kanpur
- Prof. Raktim Haldar, IIT Bhubaneswar
- Prof. Saurabh Kumar Pandey, IIT Patna
- Prof. Jhuma Saha, IIT Gandhinagar
- Dr. Debi Prasad Panda, IMEC Belgium
- Prof. Santosh Kumar, K L University
- Prof. Sayan Kanungo, BITS Pilani
- Prof. Neeraj Goel, NSUT Dwarka
- Prof. Akash Kumar Prahan, VIT Chennai
- Prof. Partha Saha, NIT Silchar
- Prof. Ahna Sharan, NIT AP
- Prof. Shuvam Pawar, NIT Warangal
- Prof. Amit Kumar Goyal, MIT Manipal
- Prof. Vivek Garg, SVNIT Surat
- Prof. Deepak Kumar Panda, Amrita University
- Prof. Vinod E. Madhavan, NIT Calicut
- Prof. Routu Santhosh, Lendi Institute of Engineering & Technology
- Prof. Jyotiprakash Kar, NIT Rourkela
- Prof. Sougata Kumar Kar, NIT Rourkela
- Prof. Soumya Ranjan Panda, NIT Rourkela
- Prof. Sumit Saha, NIT Rourkela
- Prof. Rashmi Achla Minz, NIT Rourkela

### Coordinators:

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*Contact and Queries: Please send your queries directly to the course coordinators.*

*E-certificates will be issued only to participants who attend all sessions of the course.*

## Registration Details:

The registration fee (non-refundable) for various participants for attending the short-term course is given below:

Registration Type	Fees
Faculty	NIL
Students (RS/PG/UG)	₹295 (₹250 + GST)
R&D/Industry Person	₹885 (₹750 + GST)
Lab Staff & Others	₹590 (₹500 + GST)
NITR Staff/Student	NIL

### Bank Account Details for Paying Registration Fee:

The registration fee is to be deposited in the following bank account:

Account Name	CONTINUING EDUCATION, NIT ROURKELA
Account Number	10138951784
Bank Name	State Bank of India (SBI)
Branch Name	NIT Rourkela Campus (2109)
IFS Code	SBIN0002109

Merchant Name : CONTINUING EDUCATION NIT

UPI ID : 01389517841@sbi



*Course fee can be paid via UPI using the following scanner*



### Registration Form:

To complete online registration, the participants need to fill the following google form:

<https://forms.gle/NxECoQUvLzHv9kuT9>



*Registration Link*