Dr.Sudhir Chandra Sur Institute of Technology and Sports Complex
(Formerly Known as Dr.Sudhir Chandra Sur Degree Engineering College)
540, DumDum Road, Surer Math (Near Dum Dum Jn. Station), Kolkata-700074
Phone: +91 22 25603889, 25603898, 65330375
Website: www.surtech.edu.in; Email-info@dsec.ac.in

Report on
One Day International Seminar
Organized by
Department of Basic Science & Humanities,
Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex,
(Sur Tech),(Autonomous) JIS Group, Dum Dum

Title: Graphene and Next Generation Quantum Materials: From Fundamental Physics to Applications.

Data: April 20.04. 2026

Mode: Offline

Venue: Dr Sudhir Chandra Sur Institute of Technology and Sports Complex, Dum Dum, Kolkata

No. of participant: 150

Introduction:

The Department of Basic Science and Humanities, Dr. Sudhir Chandra Sur Institute of Technology and Sports Complex (SurTech), successfully organized a one-day seminar along with an invited lecture on 20th April 2026 at 2:00 PM in Room No. 317. The session witnessed enthusiastic participation from faculty members, research scholars, and students, creating an engaging academic environment. The lecture focused on emerging advancements in graphene and quantum materials, bridging theoretical concepts with practical applications.

Objectives of the Seminar:

The primary objective of the invited lecture was to provide exposure to advanced concepts in graphene and next-generation quantum materials, linking fundamental physics with emerging technological applications. The session aimed to:

- Introduce participants to recent advancements in two-dimensional (2D) materials.
- Provide in-depth knowledge of graphene quantum dots (GQDs) and their functionalization.
- Highlight the synthesis, properties, and applications of graphene-based materials.
- Encourage interdisciplinary research in nanotechnology, optoelectronics, and quantum materials.
- Motivate students and researchers to pursue innovative and research-oriented careers.

Program Chair:

- **Prof. (Dr.) Saradindu Panda**, Principal, SurTech
  Co-ordinator:
  Dr. Dipakar Das, HoD & Asst Professor, Basic Science & Humanities, SurTech
  Co- Co-ordinator:
  Dr. Biswajit Das, Asst. Professor**,** Basic Science & Humanities, SurTech

Eminent Speaker:

The keynote lecture was delivered by Dr. Rajarshi Roy from the Institute of Solid-State Physics, TU Wien, Vienna, Austria. He is a distinguished researcher in the field of graphene, two-dimensional materials, and advanced functional materials. His extensive research contributions and international experience enriched the session, offering valuable insights into cutting-edge developments in modern materials science.

Key Highlights of the Seminar:

- Comprehensive discussion on the unique electronic and optical properties of graphene and its distinction from conventional semiconductor materials.
- Detailed explanation of graphene quantum dots (GQDs), including their synthesis and size-dependent luminescence behavior.
- Insights into functionalization techniques, such as amine-GQD synthesis, for tuning material properties.
- Introduction to advanced characterization methods, including local conductance mapping and spectroscopy.
- Exploration of next-generation quantum materials and their applications in optoelectronic devices, energy systems, and emerging technologies like ferroelectric and memristive systems.
- Emphasis on the transition from fundamental research to real-world technological applications.

Outcomes of the Seminar:

- Participants gained a clear understanding of the unique electronic and optical properties of graphene compared to conventional semiconductors.

- Enhanced knowledge of Graphene Quantum Dots (GQDs), including their synthesis and size-dependent luminescence properties.
- Improved understanding of functionalization techniques (e.g., amine-GQD synthesis) for tuning material properties.
- Exposure to advanced characterization methods such as local conductance mapping and spectroscopy.
- Insight into next-generation quantum materials and their applications in optoelectronics, energy systems, ferroelectric, and memristive devices.
- Better appreciation of the transition from fundamental physics to real-world technological applications.
- Increased awareness of current international research trends and collaborative opportunities in materials science.
- Encouragement for interdisciplinary research in nanomaterials, condensed matter physics, and related fields.
- Motivation among students and researchers to pursue research-oriented careers and innovative projects.
- Development of strong interest in emerging areas such as topological materials and quantum phenomena.

About Participant:

Around 150 participant coming from different stream of 1st year 2025-26 batch the seminar witnessed active participation from faculty members, research scholars, and undergraduate students of SurTeh. The interactive nature of the lecture encouraged engagement through questions and discussions, reflecting a strong interest in emerging areas such as graphene, nanomaterials, and quantum technologies. The program provided an excellent platform for knowledge exchange and academic interaction among all attendees.

Participant Feedback:

- Participants found the session highly informative and intellectually stimulating.
- The speaker's presentation style was well-structured, engaging, and easy to follow.
- The discussion on graphene and quantum materials was appreciated for its relevance to current research trends.

- Students particularly valued the insights into graphene quantum dots (GQDs) and their practical applications.
- The inclusion of advanced characterization techniques enhanced the learning experience.
- Participants expressed interest in attending more such lectures and workshops in emerging research areas.
- The interactive session and question–answer segment were considered highly beneficial.

Overall, the event was well-received and considered a valuable academic initiative that contributed significantly to the knowledge and motivation of the participants.

Acknowledgement:

The Department of Basic Science and Humanities expresses its sincere gratitude to Dr. Rajarshi Roy for delivering an insightful and inspiring lecture. The department also acknowledges the active participation of faculty members, research scholars, and students and JIS Management whose enthusiasm contributed to the success of the event.Finally, we also thank to Prof. (Dr.) Saradindu Panda, Principal and Dr. Soumen Basur,Registrar, the faculty members of the Department of Basic Science & Humanities and all staff of SurTech.

Conclusion:

The invited lecture concluded on a highly positive note, leaving participants with enriched knowledge and a deeper appreciation of graphene and next-generation quantum materials. The session successfully bridged the gap between fundamental science and practical applications, fostering academic curiosity and research interest. Such initiatives play a vital role in promoting scientific excellence and encouraging innovation among students and researchers.

Glimpses of the Event:

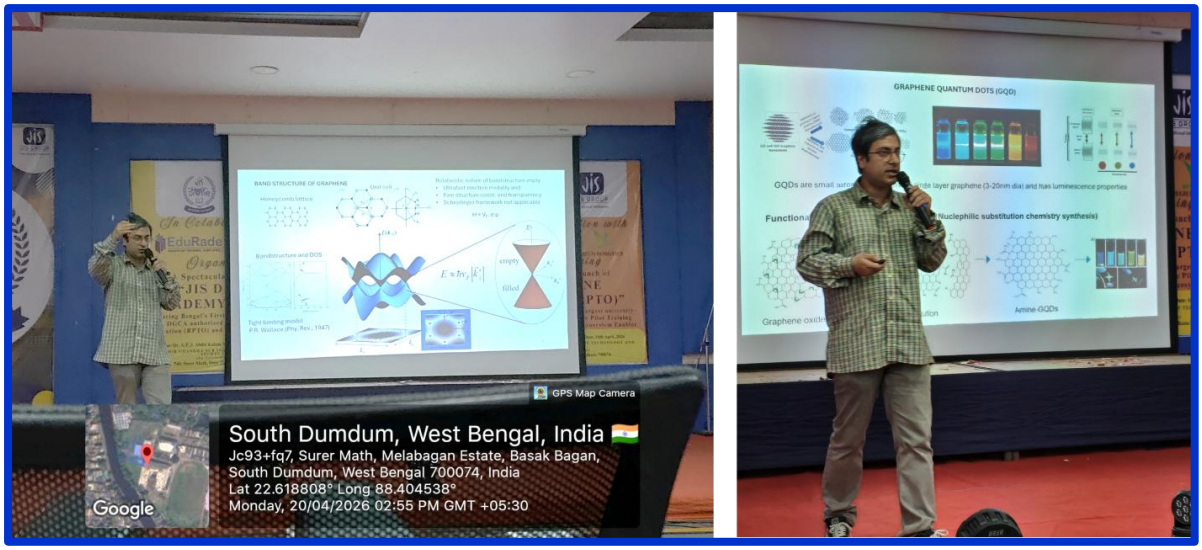

Fig.1.Some photos of eminent speaker during his valuable speech showing graphene quantum dots (GQDs) and their properties

Fig.2. Some photos of eminent speaker & enthusiastic audience. during his valuable speech of one day International Seminar on 20.04.2026 organized by BSH Dept.at SurTech