



Student Seminar Report

Departmental of Physics

Khatra Adibasi Mahavidyalaya

Organized by the Department of Chemistry and Physics,

Date: 25th June 2023

On June 25, 2023, the Department of Chemistry and Physics at Khatra Adibasi Mahavidyalaya held a stimulating student seminar focused on various significant topics in the field of physics. This seminar offered students a platform to exhibit their understanding and research findings, contributing to their academic growth and knowledge sharing. The seminar featured a series of enlightening presentations, each addressing different areas of physics.

Presentation Topics and Speakers:

1. **Optical Fibers** by Satyam Mandal (SEM-VI)
2. **Maxwell Equations** by Anindito Banarjee (SEM-VI)
3. **Interaction of Light and Matter** by Suman Mandal (SEM-VI)
4. **Photons: Energy and Momentum** by Ria Mahato (SEM-VI)

Optical Fibers by Satyam Mandal (SEM-VI)

Satyam Mandal presented an in-depth analysis of optical fibers, which are crucial components in modern communication systems. He explained the structure of optical fibers, the principle of total internal reflection that underpins their operation, and the materials used in their fabrication. Satyam highlighted the advantages of optical fibers over traditional copper cables, such as higher bandwidth, lower attenuation, and resistance to electromagnetic interference. He also discussed current applications and future advancements in fiber optic technology.

Maxwell Equations by Anindito Banarjee

Anindito Banarjee delivered an articulate presentation on Maxwell's Equations, which form the foundation of classical electromagnetism. He began by outlining the historical context and significance of these equations, developed by James Clerk Maxwell. Anindito then systematically described each of the four equations, elaborating on Gauss's law for electricity, Gauss's law for magnetism, Faraday's law of induction, and Ampère's law with Maxwell's correction. His presentation emphasized the unification of electric and magnetic fields and their implications for electromagnetic wave propagation.

Interaction of Light and Matter by Suman Mandal

Suman Mandal explored the fascinating topic of light-matter interaction. He discussed the fundamental processes through which light interacts with matter, including absorption, emission, and scattering. Suman explained how these interactions form the basis of various optical phenomena and technologies, such as spectroscopy, lasers, and photodetectors. His presentation also covered advanced topics like quantum electrodynamics and the role of photons in mediating electromagnetic forces.

Photons: Energy and Momentum by Ria Mahato

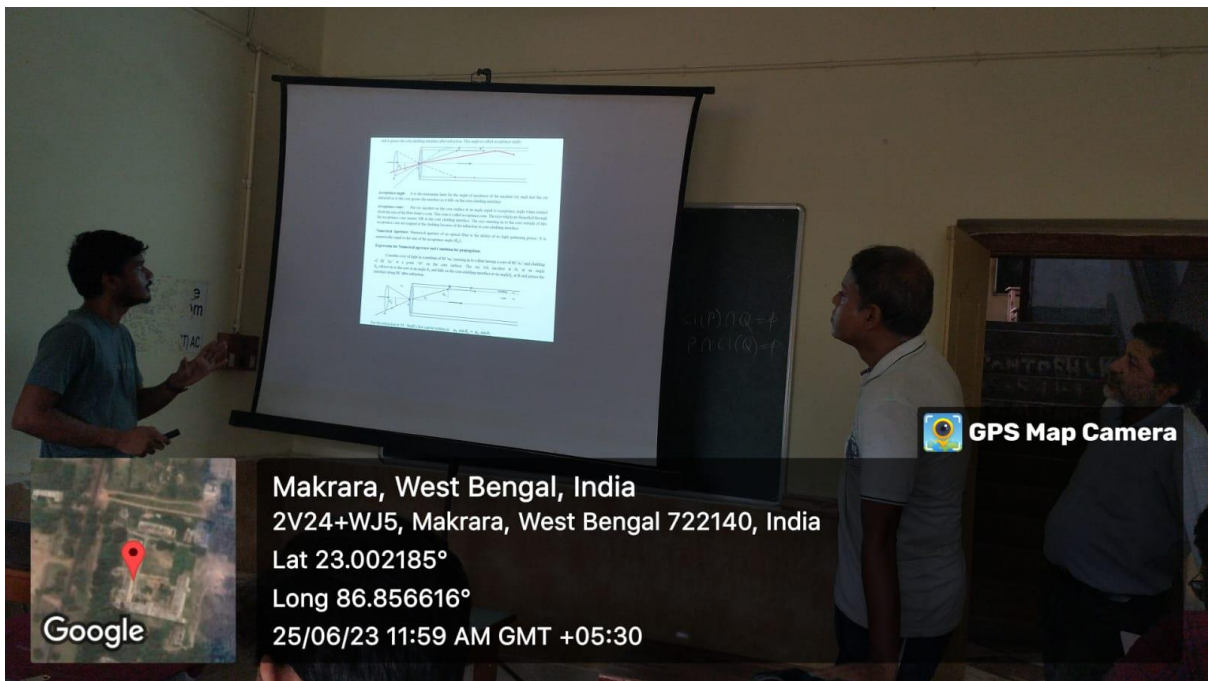
Ria Mahato's presentation focused on the quantum nature of light, particularly the properties of photons. She explained how photons, as quanta of electromagnetic radiation, possess both energy and momentum. Ria described the photoelectric effect, which provided evidence for the particle nature of light and earned Albert Einstein the Nobel Prize in Physics. Her talk also covered the implications of photon energy and momentum in various physical phenomena and technological applications, including solar cells and optical communication systems.


Conclusion

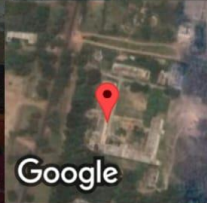
The Physics Departmental Student Seminar was a great success, showcasing the academic talents and research capabilities of the students. The presentations were well-prepared and delivered, providing valuable insights into various key areas of physics. The event was well-attended by faculty members, students, and guests, fostering a collaborative and stimulating learning environment. This seminar reflected the department's dedication to promoting academic excellence and encouraging student engagement in scholarly pursuits.

Snapshot



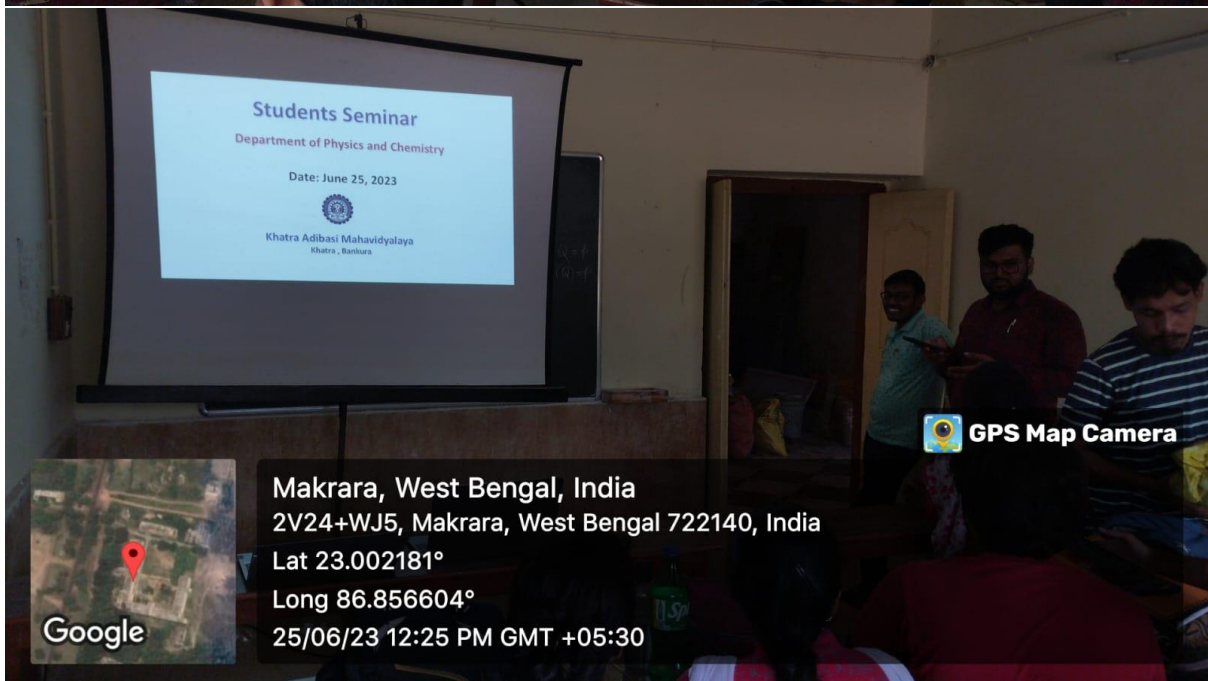



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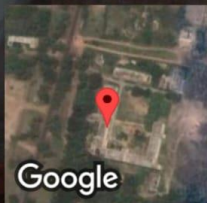


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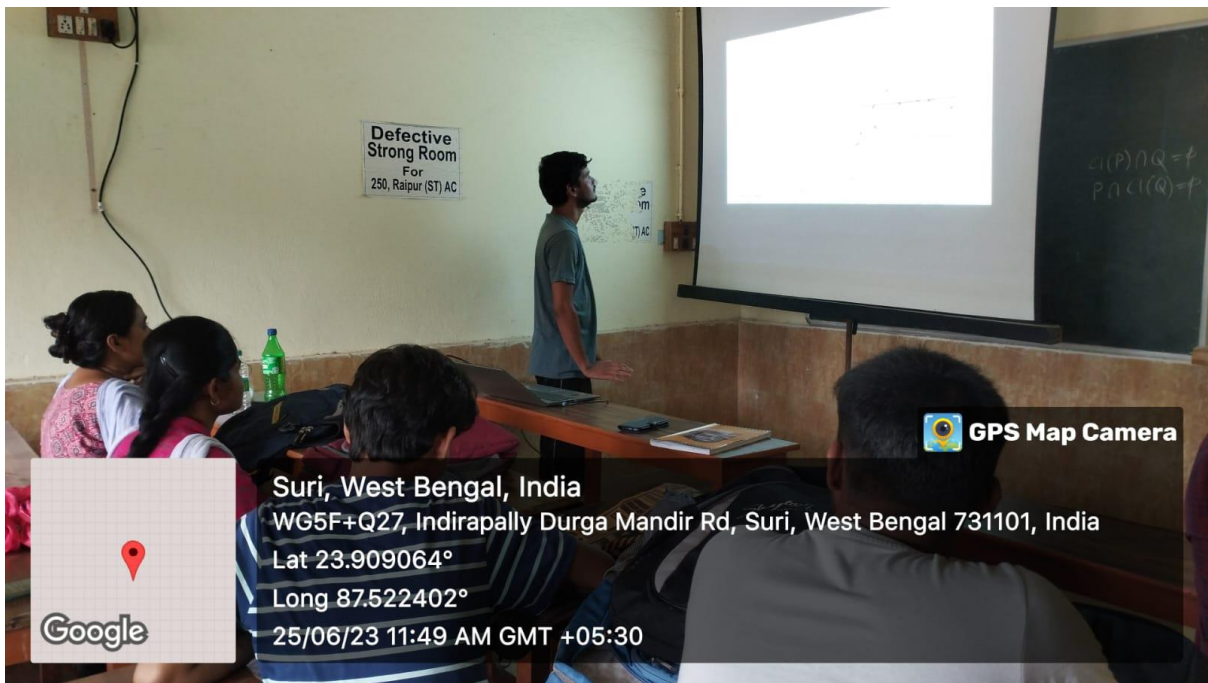


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