

Department of Chemistry, Providence Women's College

One Day Workshop

Quantum Mechanics

(Under DBT STAR College Scheme)

A one-day workshop on Quantum Mechanics was organized for the second-year undergraduate students of chemistry at Providence Women's College, Calicut on 23rd February under DBT STAR college scheme. The workshop provided participants with a deeper understanding of the transition from the macroscopic to the microscopic world. The sessions began with an exploration of wave-particle duality, connecting classical ideas with quantum principles and discussing the historical milestones that led to the development of quantum mechanics. This was followed by an introduction to the rules governing the quantum world, including the concept of superposition of states. Participants learned how quantum states differ fundamentally from classical states and explored the probabilistic nature of quantum measurements, which challenges deterministic views from traditional physics.



ONE DAY WORKSHOP
Under DBT STAR COLLEGE Scheme
23-02-24
Room No. 12

God Does Not Play Dice, But...
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WORKSHOP ON QUANTUM MECHANICS
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Objectives of the Workshop

- Reinforce basic understanding of core concepts covered in the regular curriculum.
- Explore the historical development of quantum mechanics.
- Identify and address common misconceptions.
- Interactive problem solving to reinforce the skills.
- Promote collaborative learning through group activities.

Workshop Contents

- Transition from macroscopic world to microscopic world
- Wave particle duality and historical development of quantum mechanics
- Rules of quantum world and superposition of states
- Probabilistic measurement of quantum states
- Mastering quantum operators
- Quantization of energy



In addition, the workshop introduced participants to quantum operators and the concept of quantized energy levels, which are essential for mastering more advanced topics in quantum mechanics. Through interactive problem-solving exercises, students practiced applying quantum

operators and calculating energy quantization in various systems, which deepened their understanding of these core concepts.



Overall, the workshop not only reinforced participants' understanding of foundational principles but also provided insights into the unique behaviors of quantum systems, fostering critical thinking and curiosity about the quantum realm. Interactive exercises allowed students to apply quantum mechanics principles effectively. Group work helped students learn from each other, enhancing their collaborative skills. Participants appreciated the interactive format. Suggestions included more group activity and time for hands-on problem-solving.



