PMRF-ISSS Teaching Programme

Prime Minister Research Fellowship students' teaching requirement facilitated by the Institute of Smart Structures and Systems

Module PMRF-ISSS091/III/2024

Perturbation Theory in Quantum Mechanics

Name of the PMRF student

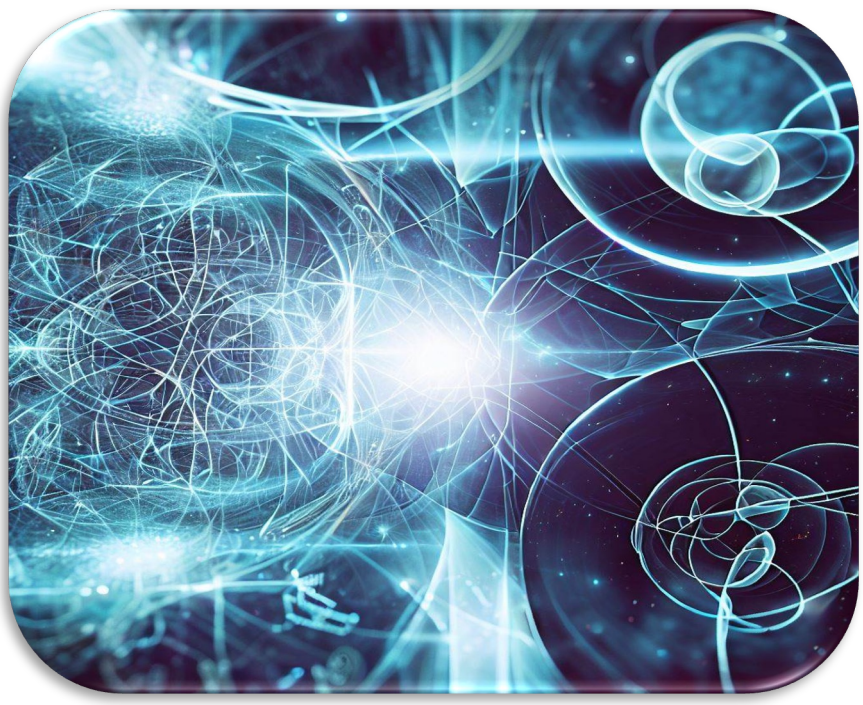
Priyanshi

Course Relevant for

- Undergraduates in Physics and technology/engineering related streams.
- Beneficial for GATE, JAM, NET aspirants.

Online session coordinator

Will be chosen from the list of registrants



Details of the content of the module

Welcome to our short course on time independent and dependent perturbation theory in quantum mechanics! This course aims to provide you with an in-depth understanding of the concept and intricacies of perturbation theory, an essential technique in quantum mechanics used for analyzing and solving complex systems. Our curriculum puts a major focus on engaging problem-solving sessions and discussions designed to enhance your analytical skills and deepen your grasp of quantum mechanical systems and their behaviors under perturbations.

We will explore a range of key topics, including:

- Time-independent perturbation theory: Non-degenerate and degenerate perturbation theory; Applications to Real Systems.
- Time-dependent perturbation theory: First-Order and Second-Order Perturbations; Transition Probabilities and Fermi's Golden Rule; Interaction Picture and Dyson Series; Applications to Radiative Transitions and Atomic Systems

Schedule of the module

Timings: Saturday and Sunday, 5:30 PM (IST)

Lecture Duration: 1.5 hours

Start Date: June 22, 2024

Total number of sessions: 17

Meeting link: Will be shared later with the registrants

Contact email ID: priyanshi1@iisc.ac.in

Registration link:

https://forms.gle/SJ7ZoHA7dKLdjRpN7