



Module PMRF-ISSS012/2022

# Quantum Mechanics-I

## Name of the PMRF student

Ms. Sugata Paul

## Details of the content of the module

### I. INTRODUCTION TO QUANTUM MECHANICS (4 lectures):

1. Young's double slit experiment of light and electron, wave particle duality: De Broglie's hypothesis, Davisson-Germer experiment.
2. Born's probabilistic interpretation, superposition principle, Heisenberg's uncertainty principle.

### II. MATHEMATICAL TOOLS AND IMPORTANT FORMALISM (6 lectures):

1. Dirac notation, observables and operators, commutator Algebra, expectation value.
2. Postulates of Quantum Mechanics, How measurements disturb systems.
3. Schrodinger's equation and stationary states.

### III. 1-D Schrodinger's equation for different cases (7 lectures):

Free Particle, Particle in a box, Potential step, Potential barrier, Finite potential well, Delta potential well, Harmonic oscillator.

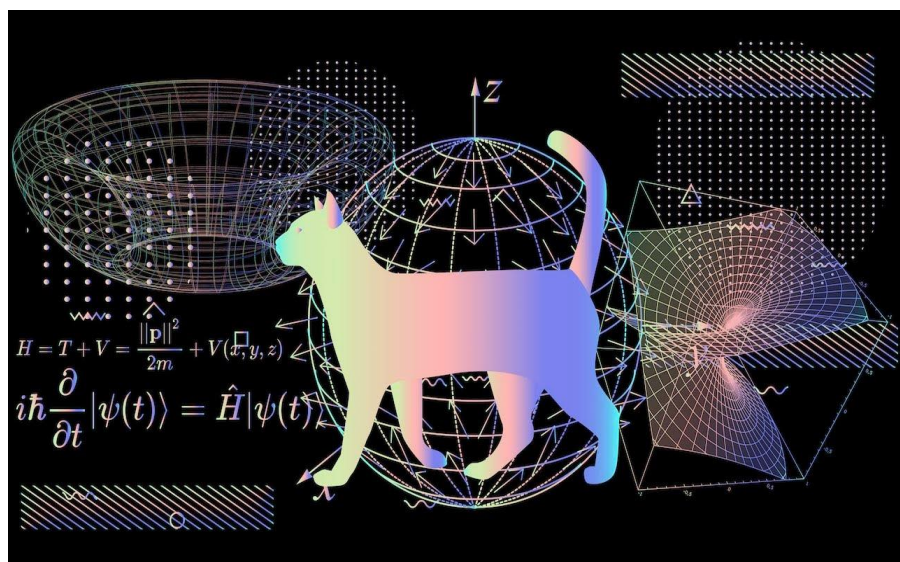
## Required background of the students taught

Students from Physics Hons. as well as all engineering streams.

(will be useful for UG or PG students wishing to pursue a career in the field of Quantum Technologies, Quantum Computation etc.)

## Online session coordinator

Will be chosen from the list of registrants



## Schedule of the module

**TIME:** 3:30-4:30 pm every Friday.

**START DATE:** July 8, 2022.

**END DATE:** October 28 (Tentatively, may extend by 1-2 weeks).

**TOTAL NUMBER OF SESSIONS:** 17 tentatively.

Meeting link : Will be shared later

Link:

Contact email

ID: [issforum@gmail.com](mailto:issforum@gmail.com)

Registration link:

<https://forms.gle/YD2bY1bK3fV87TiD7>