



## THE QUANTUM WONDER

### Introduction to Quantum Physics

#### Objective |

- Expose the deeper concepts of Quantum Physics, to talented students who are keen on pursuing a career in science or engineering.
- Introduce the various technological applications and philosophical challenges posed by the theory.
- Give them a platform to discover their potential and push their boundaries of thinking.
- Understand the importance of Quantum Physics in variety of modern-day field.
- Discover possible career pathways through science.

#### Outline |

**Can one object be located in two places at the same time? Is it possible to walk through walls?**

**Can a solid object be tuned to behave like a wave?**

**In the Quantum World, nothing is impossible!**

Quantum objects, which form the building blocks of our world, have mind-boggling and counter-intuitive properties. They have been thoroughly scrutinized in various science experiments for more than a century; and every time Quantum Physics has been proven right! Today this branch of science plays an important role in various aspects of our lives. The ability to understand and precisely control the Quantum objects has allowed us to revolutionize technology. The engineering feats such as Electron Microscopes, Quantum dots, Solar cells and Memory Storage Devices are possible due to Quantum Physics.

Because Quantum science is playing a crucial role in shaping humanity's future, it is important for students to be exposed to it at a young age. This exposure will allow them to foresee opportunities in science and technology, both for education and for future careers.

The aim of this workshop **Quantum Wonder** is exactly this. During the workshop students will get to appreciate the logic underlying Quantum Physics and study its applications in modern technologies. Students will also be exposed to the philosophical challenges raised by the theory. We will discuss questions such as 'Is there an absolute reality?' and 'Can the observed exist without an observer?'

This holistic combination of **theory-application-philosophy** makes this workshop a unique learning experience, which are typically not offered in standard science curriculums due to time constraints. Breaking out of the traditional teaching practice, the students will be taken through a hands-on and discussion-based pedagogy. They will have the opportunity to build their problem-solving, analytical and communications skills.



# Raising a Mathematician Foundation

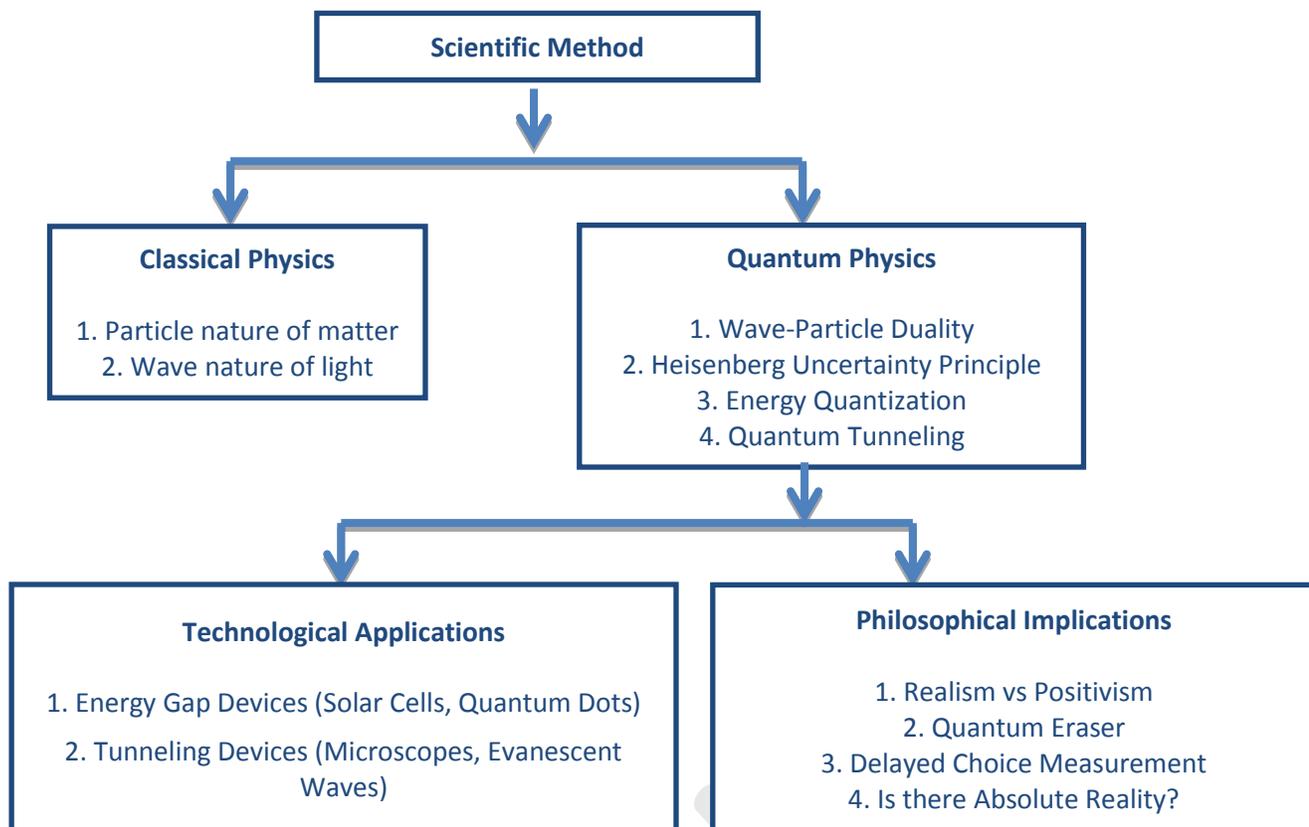
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## Workshop Highlights |

- Science underlying the Quantum World
- Technological and Engineering revolution possible due to Quantum Physics
- Philosophical challenges posed by Quantum Mechanics
- Problem-solving skills
- Group discussions and activities to improve communication skills

## Key Topics |

### Conceptual Development:





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## Skills Development:

- Questioning skills
- Critical Analysis and Reasoning
- Discussion-based Problem Solving
- Presentation of Ideas

## Target Audience |

This workshop is meant for students who are passionate about Physics and are keen to pursue a career in Science or Engineering.

The content of the course will explore topics beyond the standard curriculum; hence participating institutes must select their best students from Grade 10, 11 or 12 (those who have written the 12th boards can also apply).

Applicants must have at least either one of the following:

- Exemplary academic performance in Physics/Mathematics
- Keen interest in physics, demonstrated through extra-curricular activities, aptitude tests etc.

## Registration and Fee |

Interested students need to fill in the application form (which can be found here [www.tinyurl.com/gwonline](http://www.tinyurl.com/gwonline)). A maximum of 100 eligible students will be selected based on their response to the application questionnaire. The workshop donation would be INR 5,000/- per participant. We are a non-profit organization; hence the fee collected will be used to host our future educational activities and to help students in financial need.

If you are keen on participating in this program and are in need for financial support, please contact us on [raisingamathematician@gmail.com](mailto:raisingamathematician@gmail.com).

## Dates & Timings |

31st July 6:00 pm IST to - 3<sup>rd</sup> August, 2020. The workshop will start on 31st July 6:00 pm IST and will be for the entire day from 1st to 3rd August, 2020. Participants will have to take the entire time period off from their other commitments to benefit from the workshop.

