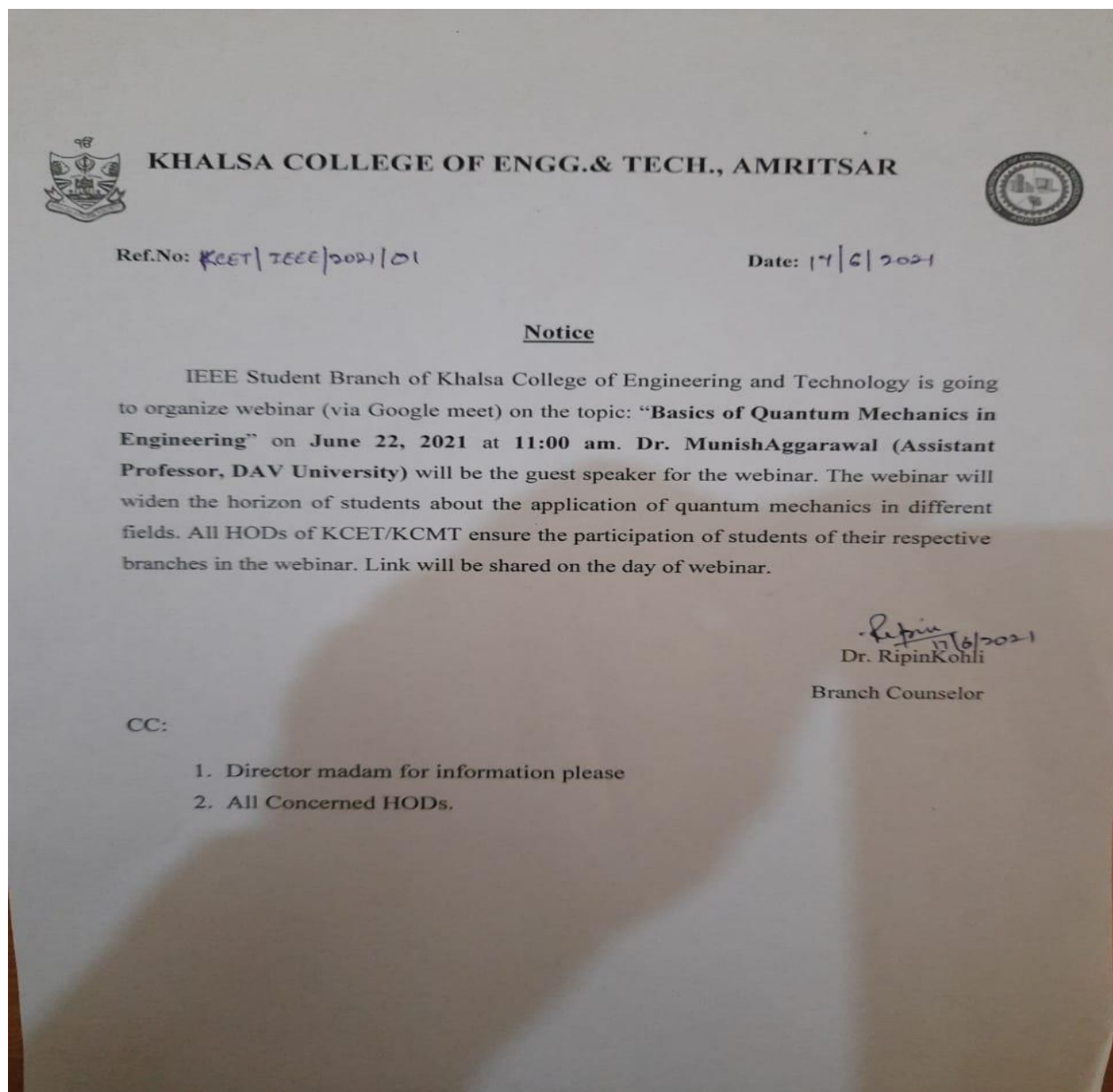


1. **Title of the Programme:** Webinar: Basics of Quantum Mechanics in Engineering
2. **Date:** 22/06/2021
3. **Speaker:** Dr. Munish Aggarwal (Assistant Professor, DAV University, Jalandhar)
4. **No. of Participants:** 39 Students

Webinar was organized by IEEE Student Branch of Khalsa College of Engineering and Technology on the topic: Basics of Quantum Mechanics in Engineering. Dr. Munish Aggarwal (Assistant Professor, DAV University) was the guest speaker of the webinar. Students of Khalsa College of Engineering and Technology and Khalsa College of Management and Technology attended the webinar with full zeal. Dr. Aggarwal in his lecture highlighted the importance and applications of Quantum Mechanics in daily life, engineering, communication, GPS, paramedical systems as well as Agriculture and Food Sciences.



Ripin Kohli is presenting

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Zoom

11:00 | oru-cvbj-noo

Participants:

- Taranbir Singh
- honey joor
- Ripin Kohli
- Charanjit Singh
- Prabhjot Singh
- Munish aggarwal
- Chanpreet Kaur
- Manjot Kaur Trehan
- Sukhmanjit Kaur
- SNEHDEEP SINGH...
- 22 others
- You

Munish aggarwal is presenting

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Regular old classical physics

Newtonian Physics

When things get fast

Special relativity

Small & fast

Quantum physics

Quantum field theory

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Participants:

- Ripin Kohli
- Munish aggarwal
- Charanjit Singh
- Sukhmanjit Kaur
- Manjot Kaur Trehan
- Chanpreet Kaur
- Taranbir Singh
- honey joor
- Prabhjot Singh
- Ankush Syal
- 33 others
- You

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Let's start with photon energy

- Light is *quantized* into packets called *photons*
- Photons have associated:
 - frequency, ν (nu)
 - wavelength, λ ($\lambda\nu = c$)
 - speed, c (always)
 - energy: $E = h\nu$
 - higher frequency photons \rightarrow higher energy \rightarrow more damaging
 - momentum: $p = h\nu/c$
- The constant, h , is Planck's constant
 - has *tiny* value of: $h = 6.63 \times 10^{-34} \text{ J}\cdot\text{s}$

Ripin Kohli

Munish aggarwal

Charanjit Singh

Sukhmanjit Kaur

Harman Aulakh

Taranbir Singh

Sukhjinder Singh

Rubalpreet Kaur

Prabhjot Singh

john bhatti

29 others

You

11:24 | oru-cvbj-noo

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The Schrödinger Equation

Heisenberg's Matrix Mechanics

1924: de Broglie suggests particles are waves


Mid-1925: Werner Heisenberg introduces Matrix Mechanics

- Semi-philosophical, it only considers observable quantities
- It used matrices, which were not that familiar at the time
- It refused to discuss what happens between measurements
- In 1927 he derives uncertainty principles

Late 1925: Erwin Schrödinger proposes wave mechanics

- Used waves, more familiar to scientists at the time
- Initially, Heisenberg's and Schrödinger's formulations were competing
- Eventually, Schrödinger showed they were equivalent: different descriptions which produced the same predictions

Both formulations are used today, but Schrödinger is easier to understand



Ripin Kohli

Munish aggarwal

Charanjit Singh

Sukhmanjit Kaur

Harman Aulakh

KARAN PAL SINGH

Sukhjinder Singh

Atul Sharma

Prabhjot Singh

john bhatti

29 others

You

11:38 | oru-cvbj-noo