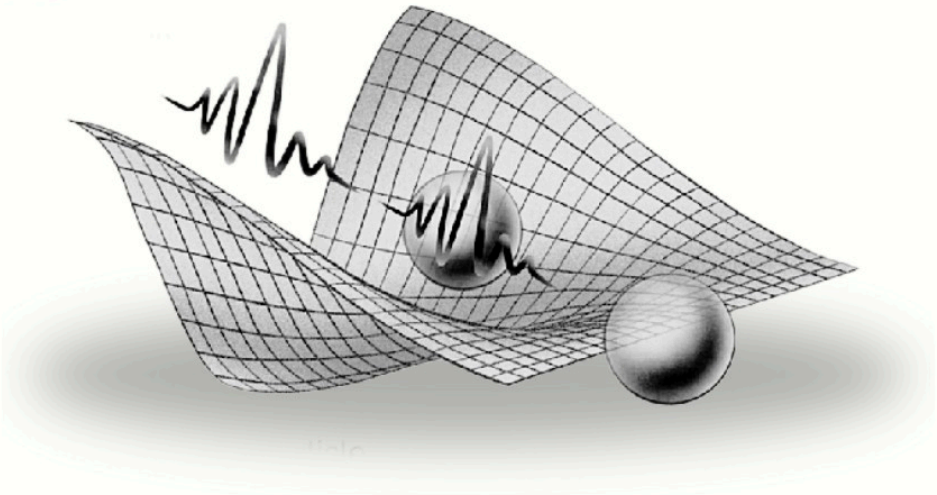
GURU TEGH BAHADUR INSTITUTE OF TECHNOLOGY

THE PARTICLE POST

DUALITÉ ONDE-CORPUSCULE



UNITY IN DUALITY

QUANTUM QUORUM •••
••• YOUR PHYSICS FORUM

EDITION : 1-2 DATE:15/11/24

QUANTUM QUORUM

QQ commemorating unparalleled
martyrdom of Guru Tegh Bahadur sahib ji

Give up your head, but forsake not those whom you have undertaken to protect. Sacrifice your life, but relinquish not your faith

S. Amarjeet Singh
(Chairman,GTBIT)

We would like to express our sincere thanks to our respected Chairman S.Amarjeet Singh for his continuous support in all our endeavors.

S. Harjeet Singh
(Manager,GTBIT)

We are deeply grateful to S.Harjeet Singh for his unwavering support throughout our journey, which has been vital to our growth and achievements.

Dr. Rominder Kaur Randhawa
(Director,GTBIT)

We would like to thank our honorable director Dr. Rominder Kaur Randhawa for encouraging us to start our society where we can explore the world of physics.

Dr. Simmi Singh
(Professor
Head, Exam cell)

We also want to express our sincere gratitude to Dr. Simmi Singh for continuously lighting our pathway with her valuable advice.

Dr. Parsan Kaur
(Associate Professor
HoD, Applied Sciences Deptt.)

We want to thank Dr. Parsan Kaur for their ongoing support and motivation, which helps us to achieve our goals.

Dr. Daljeet Kaur
(Associate Professor,
Convener)

We would also like to acknowledge the invaluable effort put forth by Dr. Daljeet Kaur for guiding us and providing essential ground-level support.

Lesser Known Gems

Sir Kariamanikkam Srinivasa Krishnan (4 December 1898 – 14 June 1961) was a co-discoverer of Raman scattering, for which his mentor C. V. Raman was awarded the Nobel Prize in Physics in 1930. He was born in a Vaishnavite brahmin family on 4 December 1898 in Watrap (Tamil Nadu). He had his early education in Hindu Higher Secondary school, in Watrap, after which he attended the American College in Madurai and the Madras Christian College. After gaining his degree in Physics he became a demonstrator in chemistry.

K. S. Krishnan joined C. V. Raman in 1920 at the Indian Association for the Cultivation of Science, Kolkata, focusing on light scattering experiments. He significantly contributed to the discovery of the Raman Effect, which explains energy changes in scattered photons, aiding material analysis. Between 1925 and 1928, Krishnan authored 16 papers under Raman's guidance and conducted crucial experiments demonstrating inelastic light scattering. He first demonstrated the scattering effect to Raman, leading to their joint discovery of the Raman Effect on February 28, now celebrated as National Science Day.

In 1928, K. S. Krishnan joined Dacca University, advancing magnetic anisotropy research in crystals, published in 1933 by the Royal Society. Later, as Mahendralal Sircar Professor in Kolkata, he and Santilal Banerjee developed the Krishnan-Banerjee method for measuring magnetic susceptibility. In 1942, he joined Allahabad University, focusing on solid-state physics and metals. Krishnan was appointed the first director of India's National Physical Laboratory in 1947, contributing to the establishment of scientific infrastructure. He received the Padma Bhushan in 1954 and became the first recipient of the Bhatnagar Award in 1958.

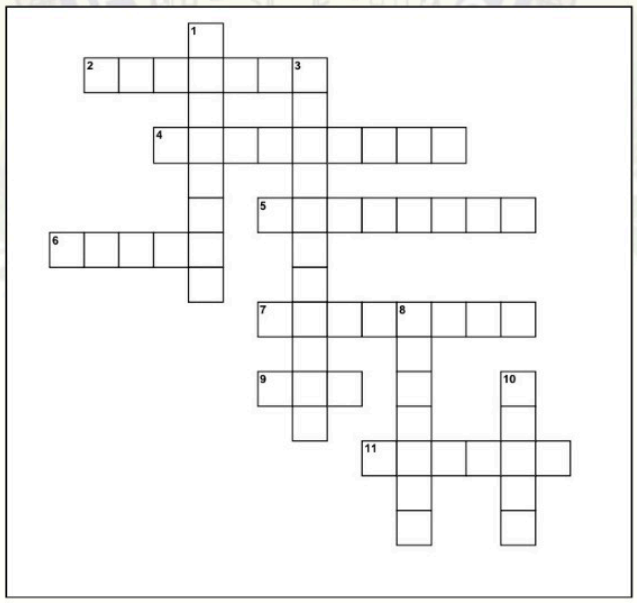
LAB,LAUGH AND LOGIC

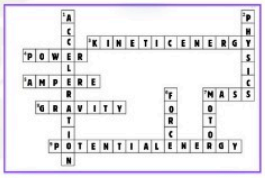
SUDOKU

				8	1		6	
8								
1					6			8
					3	9	8	
	3	5	8		2	6		
7	1	8	6			2		
	8			3	7	4	5	2
5			2	6	8	3		
3		9					7	6

COMIC

CROSSWORD





Across

[2] Energy of dynamic onjects

[4] Energy of static objects

[5] Force per unit area

[6] Newtons ____ law of motion about stationary obje that tend to stay at rest

[7] The amount of water vapors present in the air

[9] One of the three stats of matter like air

[11] One of the three states of matter

Down

[1] The speed in a direction

[3] The outward force from center of rotation objects

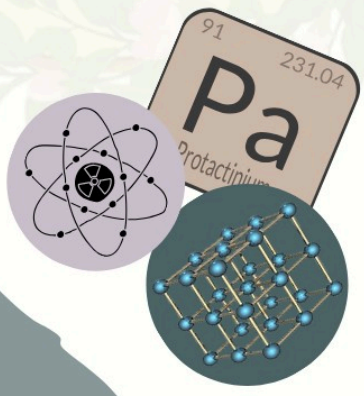
[8] Mass divided by its volume

[10] Newtons ____ law stating every action has equal and opposite reaction

Quantum Queens

Mileva Marić

Mileva Marić (1875–1948) was a Serbian physicist and mathematician, known for her academic achievements and contributions to Albert Einstein's early work. Born in Austria-Hungary, Marić was one of the few women of her time to excel in physics and mathematics. She attended an all-boys school in Zagreb and later studied at Zurich Polytechnic, where she met Einstein, whom she married in 1903. Marić played a significant role in Einstein's scientific career, aiding with calculations, theoretical discussions, and lecture preparations. Evidence suggests her involvement in the development of the Special Theory of Relativity (1905), with Einstein referencing their work as "ours" in letters. After their divorce in 1919, Marić raised their sons, Hans Albert and Eduard. She faced financial struggles, especially due to Eduard's schizophrenia care. Marić sold properties to support him, and he spent his life in an asylum.



- 1905: Earned a Ph.D. in physics, becoming a pioneer female physicist.
- 1917: Co-discovered protactinium with Otto Hahn.
- 1938: Explained nuclear fission's mechanism, revolutionizing atomic science.
- 1938: Fled Nazi Germany, continuing research in Sweden.
- 1997: Honored with element meitnerium (Mt).

Research Rundown

Student's Space

Innovative Nanostructures: Mini Dinosaurs & a Big Leap in Robotics


Hey Saurabh, have you read about the groundbreaking research from the University of Sydney? Scientists are using DNA origami to create nanoscale structures with massive potential!

Yes, Vani! They've even made a nano-dinosaur and a tiny map of Australia, just 150 nanometers wide. It's incredible how these programmable nanostructures could revolutionize targeted drug delivery and adaptive materials.



Exactly! These structures use DNA strands like Velcro, binding precisely to create custom designs. The researchers call them "voxels," like 3D pixels.

And the applications are mind-blowing! From cancer-targeting nanobots to energy-efficient optical signal processing, this could transform medicine, materials science, and even electronics.



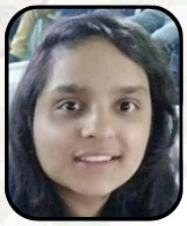
Dr. Shelley Wickham and Dr. Minh Tri Luu describe it as building with nanoscale Meccano. It's amazing how interdisciplinary research is bringing science fiction closer to reality.

Totally, Vani. A future where nanobots work inside our bodies or adapt to environmental stimuli doesn't seem too far away now. This is innovation at its finest!



Absolutely, Saurabh. Let's keep an eye on this—who knows what breakthroughs are coming next!

Hey future physics legends! Got a theory, project, or cool insight you'd love to share? Send us your entries for a chance to be featured in our next newsletter. Show us what you've got—let's inspire together!"
Kindly send your entires to the society mail soc4gtbit@gmail.com


Vani Yadav
CSE-DS


Saurabh Raj
CSE-DS

Convener's Column


Dr. Daljeet Kaur

A general property of the dusty plasma system is the spontaneous self-excited oscillation of organized or random motion. This may lead to new instabilities in the presence of dust grains or influence the characteristics of plasma instabilities without dust. Weibel instability (WI) is one such electromagnetic instability that converts the kinetic energy of streaming electrons in plasma into magnetic energy capable of sustaining a collisionless shock. WI is important for an understanding of the energetic electromagnetic emissions of gamma-ray bursts and supernova explosions. The counter-propagating electrons in an unmagnetized dusty plasma have the capability of generating electromagnetic waves via WI.

*Reference: Weibel instability oscillation in a dusty plasma with counter - streaming electrons
Daljeet Kaur, Suresh C. Sharma, R.S. Pandey and Ruby Gupta

KEEPING UP WITH Q²

A Stellar Debut: The First Edition of The Particle Post

The inaugural edition of The Particle Post released on 15 November 2024,a significant milestone for Quantum Quorum, This captivating newsletter, launched on the auspicious occasion of Guru Nanak Dev Ji Prakash Purab, has successfully captured the essence Of physics and ignited a spark of curiosity among readers.

The newsletter featured engaging articles, including a spotlight on Narinder Singh Kapany, the father of optical fibre, and a "Quantum Queens" column honoring Lise Meitner. It celebrated student and convener achievements, led by Dikshant Tayal and Dr. Daljeet Kaur, highlighting innovative research. Comprehensive event coverage, such as Quantum Quorum's scavenger without hunt, fostered community among physics enthusiasts. Interactive elements like puzzles, quizzes, and comics added a fun, engaging dimension to the edition.

Overall, the first edition of The Particle Post has set a high standard for future growth. We are thrilled for upcoming editions and look forward to the continued exploration of the fascinating world of physics. Congratulations to the entire team for this remarkable achievement!

Anushka Janoti

Farewell dear Anushka!!
May her Divine soul Rest in peace...
GTBIT Family

Ayush Meena

Farewell dear Ayush!!
May his Divine soul Rest in peace...
GTBIT Family

About Our Team

This society aims to unite like-minded individuals to explore physics, solve real-world problems, and make impactful contributions, envisioning a future where physics advances technology and improves lives.

Vishal Verma
CSE-AIML
President

Harshal Chauhan
CSE-DS
General Secretary

Dikshant Tayal
IT-3
Content Team Head

Harmanjeet Singh
CSE-AIML
Project Team Head

Archita Garg
CSE-DS
Management Lead

Vanshika Bansal
CSE-DS
Outreach Team Head

Sukhmeet Kaur
CSE-DS
Vice President

Abhinoor Singh
CSE-DS
Graphic Design Head

Lavanya Bedhara
CSE-DS
Social Media Head

Team Members

Karamjass Kaur (Management Co-Lead)

Satyam Singh Negi (Co-Head Design Team)

Abu Bakar (Co-Head Project Team)

Sidak Singh Suri (Co-Head Content Team)

Ashish Jakhmola (Member Design Team)

Ishmeet Kaur (Member Social Team)

Mehraj Singh (Member Content Team)

Manan Makhija (Member Project Team)

Jaskaran Singh (Member Management Team)

Kinshunk Garg (Member Management Team)