



MUGBERIA GANGADHAR MAHAVIDYALAYA

P.O.—BHUPATINAGAR, Dist.—PURBA MEDINIPUR, PIN.—721426, WEST BENGAL, INDIA

NAAC Re-Accredited B-Level Govt. aided College

CPE (Under UGC XII Plan) & NCTE Approved Institutions

DBT Star College Scheme Award Recipient

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Date:- 12/08/2019

Notice

This to notify that APC Roy (A Science Devotee, Bengal Chemist and Patriotic Entrepreneur), Memorial Lecture -3 will be organized by Dept. of Chemistry in collaboration with IQAC of the college, on 19th August 2019 at 3:30 PM. All students, Faculty members and administrative staff of science department are requested to attend the said programme.




Signature of The Principal
Dr Swapan Kumar Misra
Principal
Mugberia Gangadhar Mahavidyalaya



MUGBERIA GANGADHAR MAHAVIDYALAYA

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Report of APC Roy Memorial Lecture -3 (2019)

Mugberia Gangadhar Mahavidyalaya's Chemistry Department proudly hosted the APC Roy Memorial Lecture-3 on August 19, 2019, commemorating Acharya Prafulla Chandra Roy—a distinguished scientist, Bengal Chemist, and patriotic entrepreneur.

Esteemed scientists were invited to share insights, enriching both faculty and students. The event included a poster competition, encouraging students to explore diverse scientific topics, fostering creativity, critical thinking, and effective communication.

The enthusiastic participation showcased students' dedication to scientific exploration. After careful evaluation, the top three posters were recognized for their exceptional content, presentation, and innovative approach. The event exemplified the commitment of Mugberia Gangadhar Mahavidyalaya to honor scientific legacies and promote academic excellence.




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Introduction

- In 1905, Albert Einstein changed our perception of the world forever.
- He published the paper "On the Electrodynamics of Moving Bodies."
- In this, he presented what is now called the Special Theory of Relativity.

• Lorentz and Fitzgerald never denied the existence of ether. They postulated an independent effect ("contraction") that masked its visible consequences.

• However, Poincare, in 1900, asked the question:

"Does the ether really exist?"



Henri Poincaré

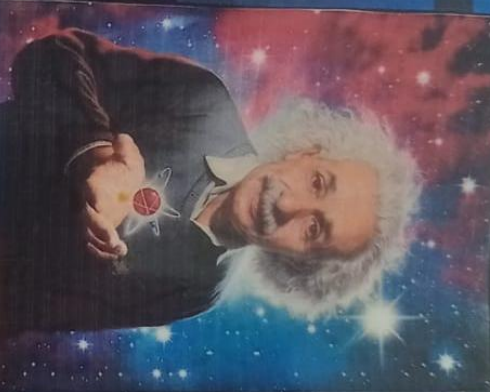
Michelson-Morley experiment: the design



Experiments were performed to compare the speed of light when moving along or against the ether.

This turned out to be one of the most far-reaching conclusions from Relativity.

• Using his own postulates, and Einstein imagines an experiment with light rays, and demonstrates that Special Relativity gives a different answer.



The mass of a body is a measure of its energy

$$E = mc^2$$

Lorentz Transformation

$$x' = \frac{x - vt}{\sqrt{1 - v^2/c^2}}$$

$$y' = y$$

$$z' = z$$

$$t' = \frac{t - vx/c^2}{\sqrt{1 - v^2/c^2}}$$

Given two frames, one moving at constant velocity with respect to the other, how do we transform the coordinates?

The traditional answer would have been, Lorentz noted that the excess transit time in the parallel direction could be compensated if the apparatus shrinks when oriented along the ether.

For this we must assume that the contracted length L' is related to the original one by:

$$L' = L\sqrt{1 - v^2/c^2}$$

"The laws of physics are the same in all inertial frames."

"The speed of light is constant in all frames."

The Postulates of the Special Theory of Relativity

• However, the experiment did not find this result. In fact it found no discrepancy in the transit time.

Michelson-Morley experiment: the actual apparatus



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