Introduction to STR

Revolutionised Newtons Theory

1. Put forward by Einstein in 1905
2. Revolutionised Concept of space, time and motion on which Newtons laws were formed
3. Most discussed theory in 21st centuary
4. At that time entire therory was build up on 3+1 laws of Newton
5. Because Newtons theory explain macroscopic world with amazing sucess

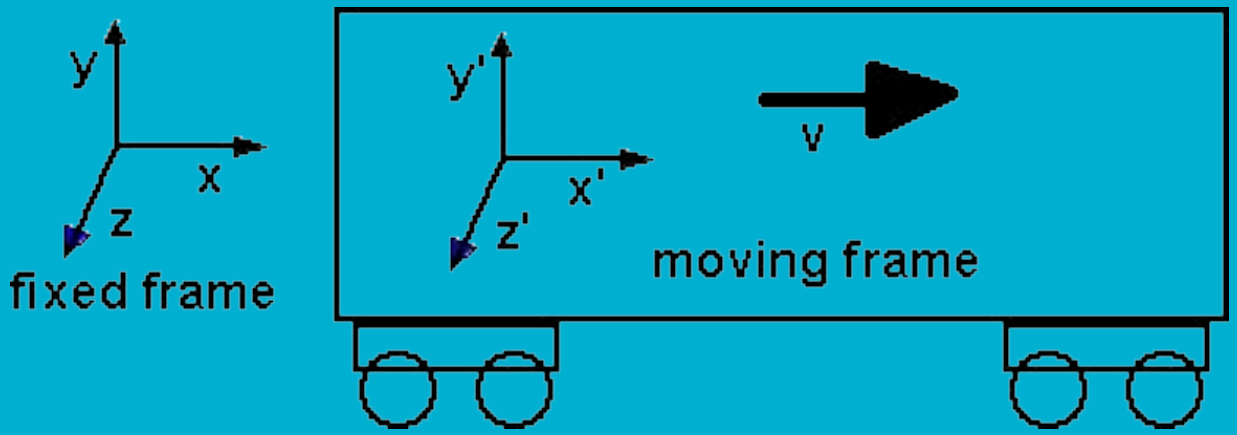
Newtons Theory

- Many scientist believe Newtons laws are universal
- Newton assumd Space and time are Universal

EM Theory

To support absolute space scientist proposed a new hypothetical medium called ether which spread all over space

Do you remember this?



What did you learn about moving frames?

Students, write your response!

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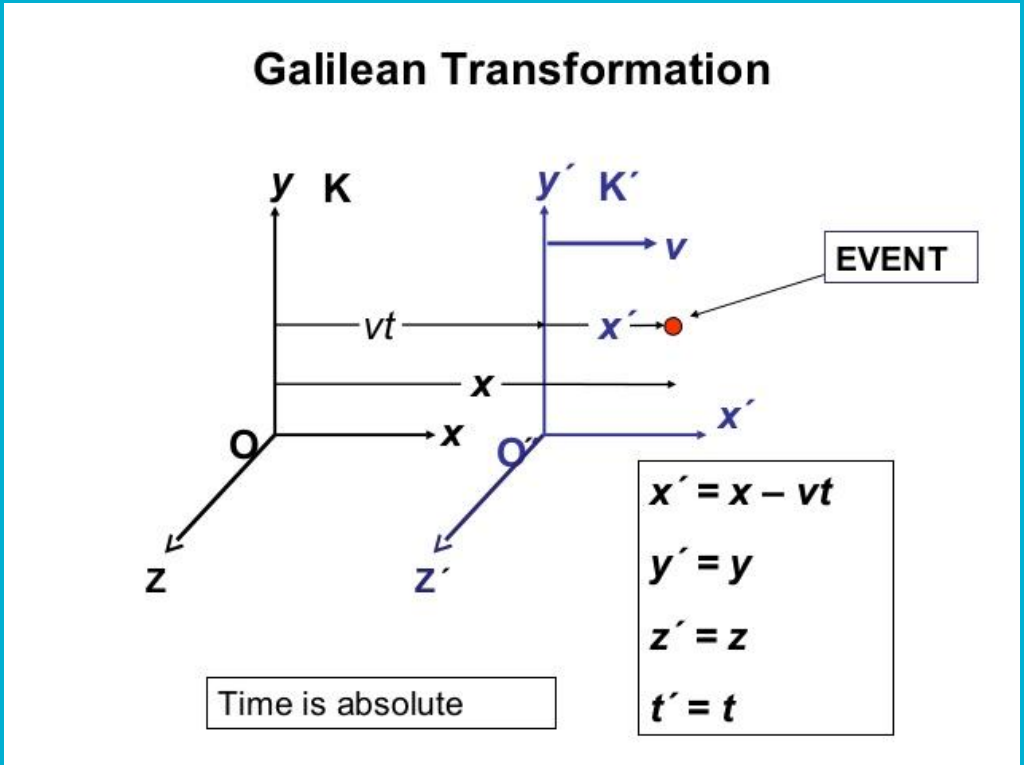
Galilean Transformation



Is galilean transformation work always?

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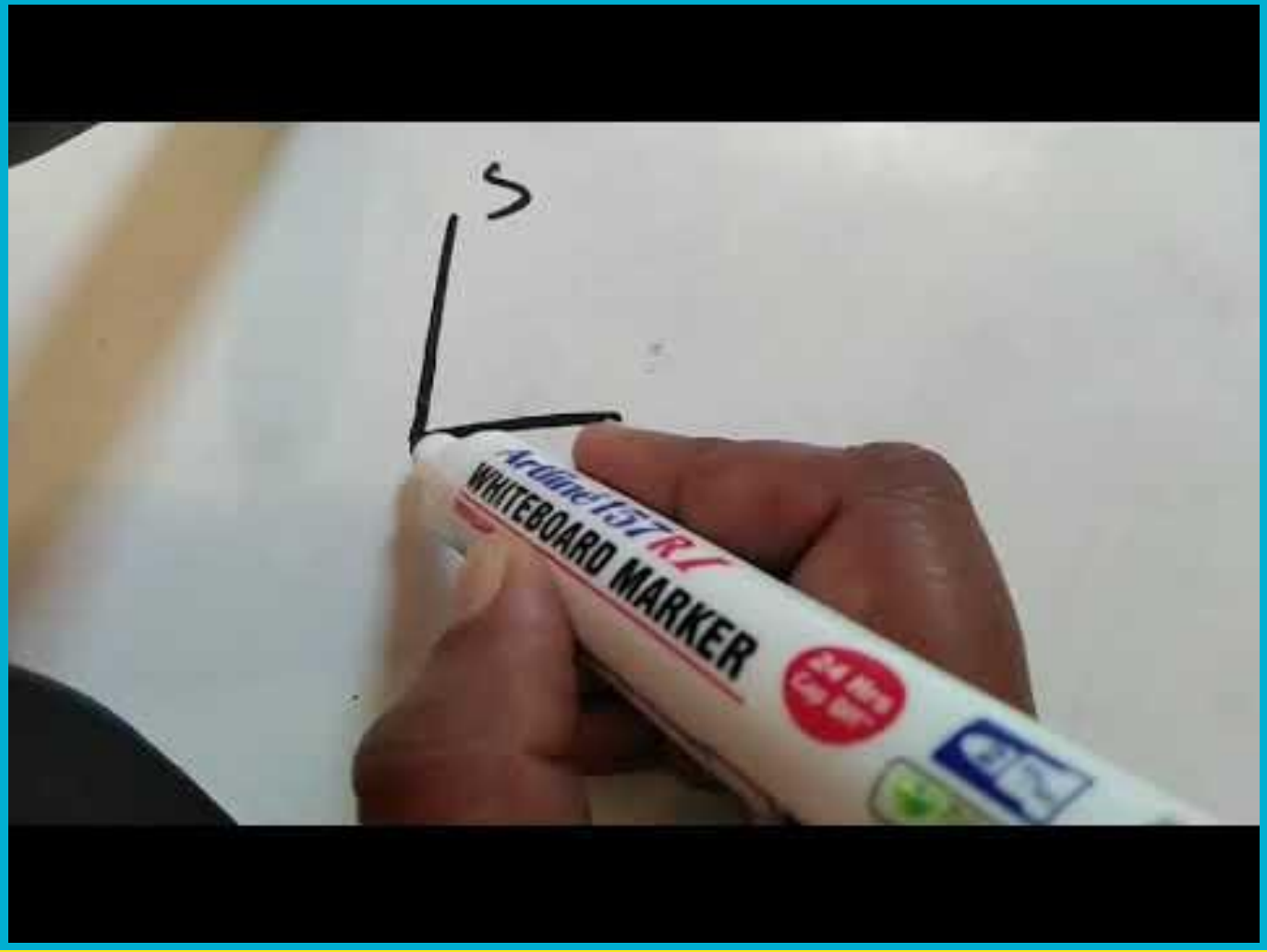
EM and Gallilean transformation

- Newtons laws are inavriant under gallilean transformation
- Other laws of mechanics also satisfy
- Basic laws of physics are same in all inertial frames
- But, when Maxwell equation of EM waves come into play problems arise
- According to which velocity of light is a constant


WHITEBOARD MARKER

The luminiferous ether

- Mechanical waves, water, sound, strings, etc. require a medium
- The speed of propagation of mechanical waves depends on the motion of the medium
- It was logical to accept that there must be a medium for the propagation of light, so that em waves are oscillations in the ether
- Newton, Huygens, Maxwell, Rayleigh all believed that the ether existed

ETHER HYPOTHESIS

- STATIONARY ETHER
  - Ether is at rest with respect to the bodies moving through it.
  - The reference frame in which ether is considered to be rest is called ether frame
  - Here velocity of light is c
- Ether drag hypothesis
  - Ether is draged along wyith the bodies whoch move throgh it

Did you think ether exist?

Students, drag the icon!

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Is this introduction is clear

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What do you think about ether?

Students, write your response!

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