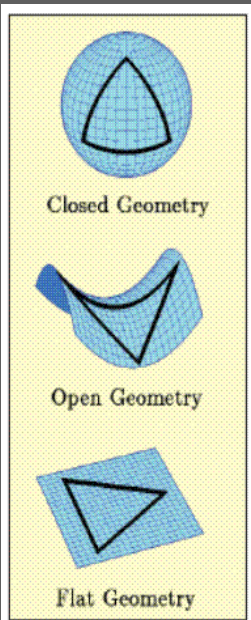
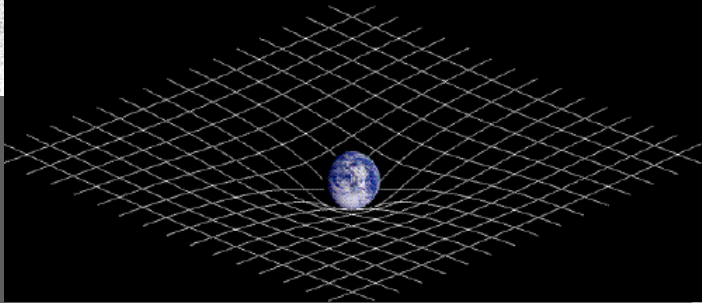
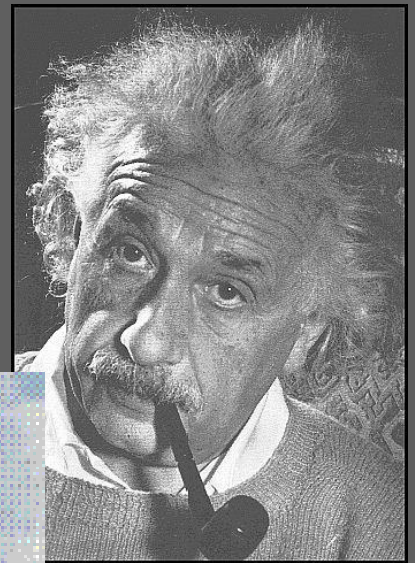
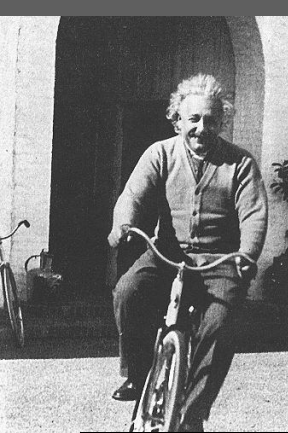
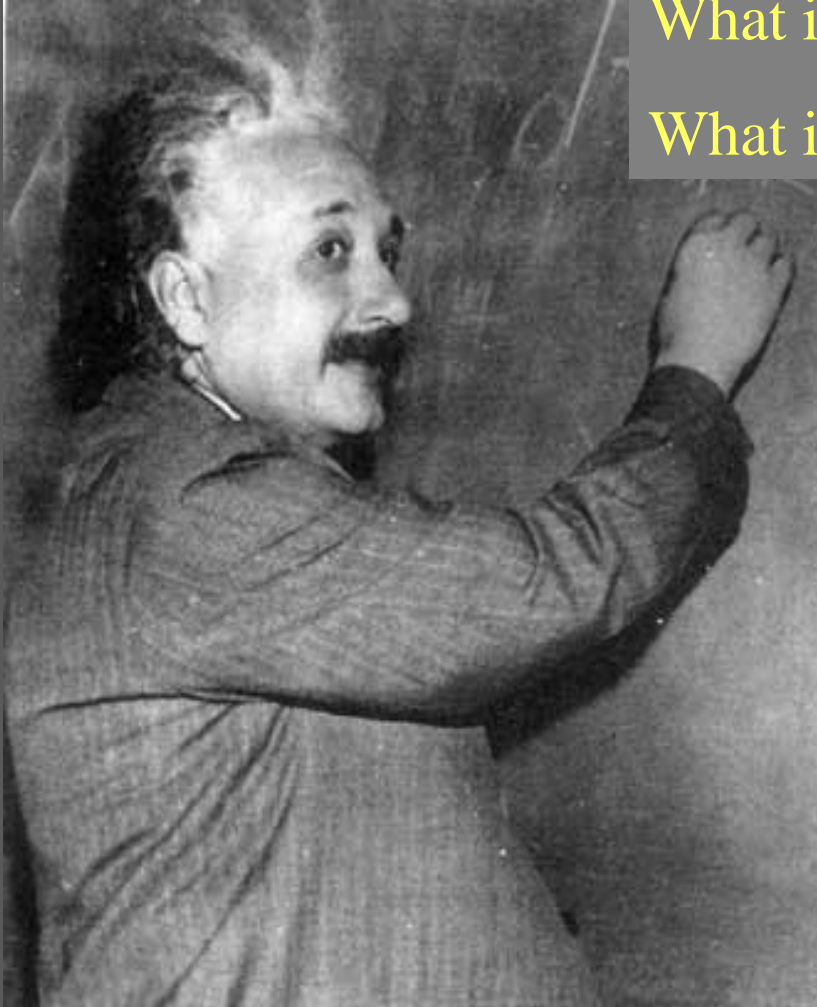


Relativity: the warping of space, time, and minds



Steve Manly
Department of Physics and Astronomy
University of Rochester



What is time??

What is space??

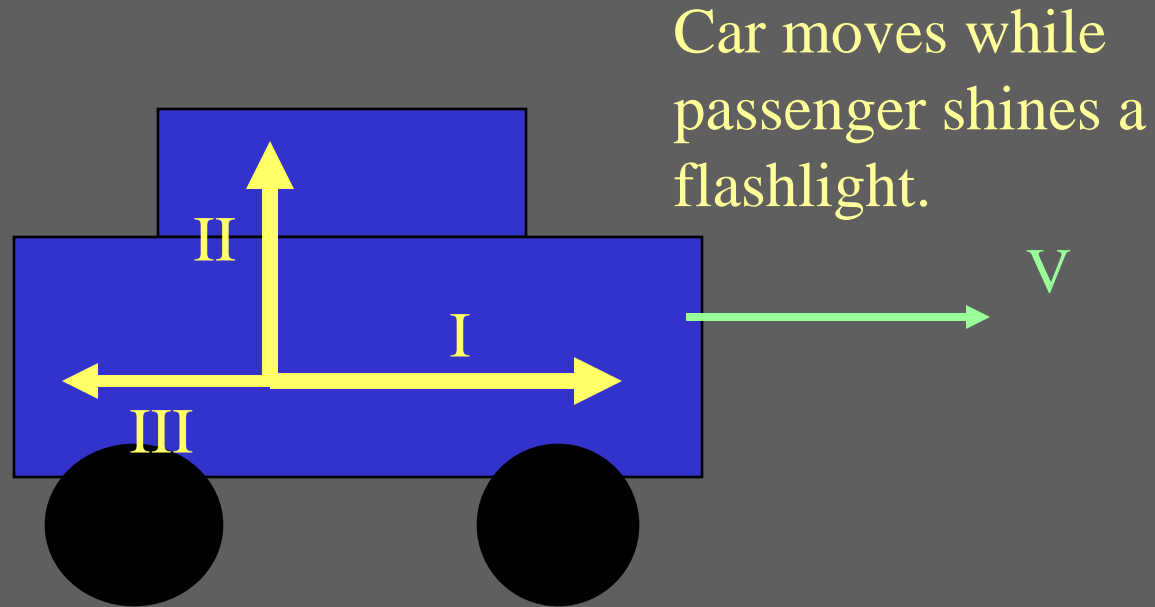


Speed with respect to you is 4 mi/hr



Speed with respect to you is $2 + 4 = 6$ mi/hr

The speed of light is greater for beam I, beam II or beam III?



Experiment says the speed of light is the same in all directions!!



waves

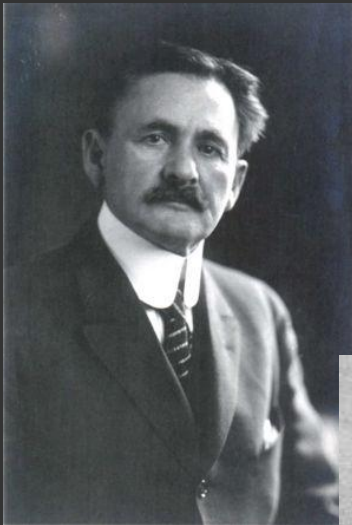


Photo credit: Andrew Davidhazy

Michelson-Morley experiment

1881 – A.A. Michelson in Berlin

1887 - A.A. Michelson and E.W. Morley in US (Case Western)

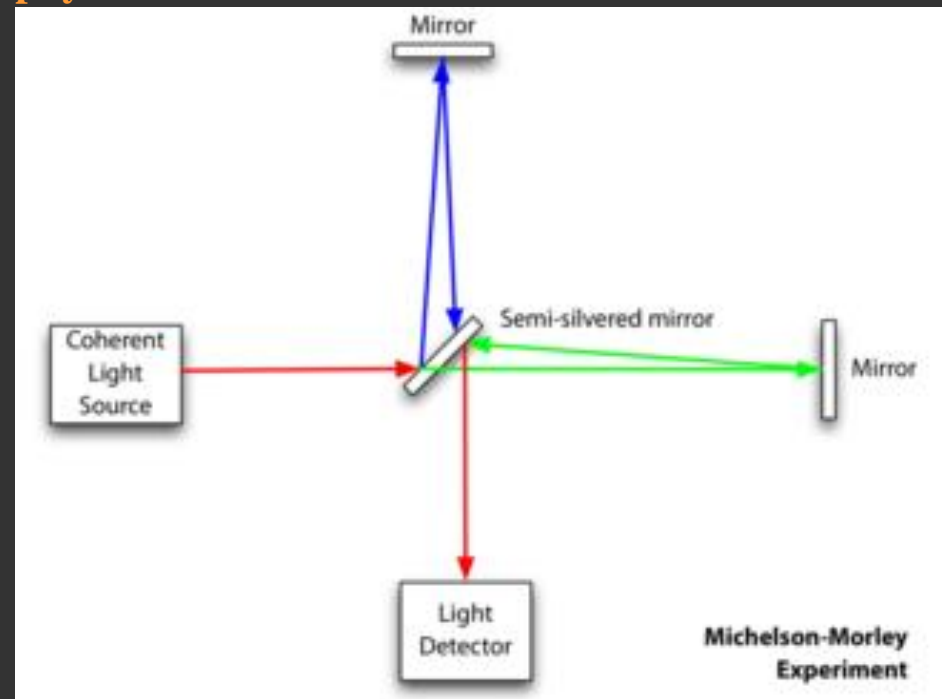


1907 Nobel Prize in physics

Michelson

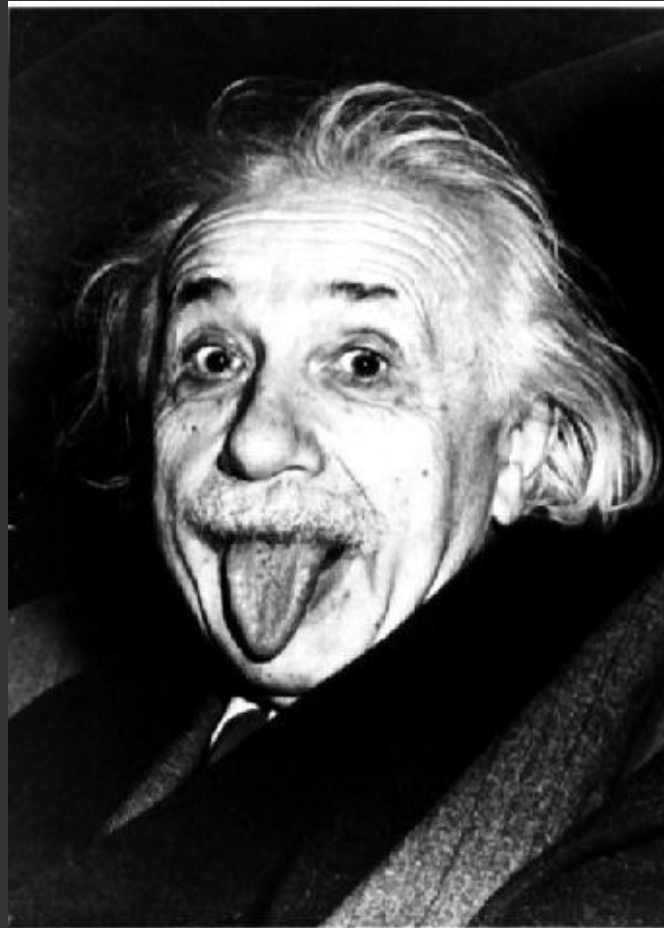


Morley



Weird, huh? What does it mean for the real world?

Enter our man Einstein!



Instead of trying to “save the current paradigm”, Einstein bowed before the experiment.

What if it is true??

Two postulates:

- 1) Michelson-Morley is correct. Speed of light is the same in all inertial reference frames
- 2) Physics is the same in all inertial reference frames

Moving at constant speed



Point of view of observer

