

## Astro 25 week 6b: Useful readings/Homework #08

Wikipedia readings (Beware: dig too deeply into these, and you face the consequences.)

Tachyons

<http://en.wikipedia.org/wiki/Tachyon>

Special relativity

[http://en.wikipedia.org/wiki/Special\\_relativity](http://en.wikipedia.org/wiki/Special_relativity)

Einstein

[http://en.wikipedia.org/wiki/Albert\\_Einstein](http://en.wikipedia.org/wiki/Albert_Einstein)

Ladder Paradox (another paradox, resolved via simultaneity arguments)

[http://en.wikipedia.org/wiki/Ladder\\_paradox](http://en.wikipedia.org/wiki/Ladder_paradox)

Antimatter

<http://en.wikipedia.org/wiki/Antimatter>

Original documents—you might enjoy seeing the original sources, and English translations. They are in the Astro 25 online reading room.

Einstein (1905), the photoelectric effect

Einstein (1905), Brownian motion

Einstein (1905),  $E=mc^2$

Einstein (1905), Special relativity

### Homework #8 (5 points)

Write an essay, using as many words as needed, but at least 150 words, on the following matter. You will be graded on how well you support your perspective.

A force that appears because it is due to a non-inertial reference frame is fictitious. In a similar way, if you are in free-fall (an accelerating, non-inertial reference frame), the force of gravity can be made to disappear (i.e., weightless, as in a falling elevator or in a space station orbiting the Earth). Therefore, ultimately, gravity should be considered a fictitious force.

Do you agree or disagree? Justify your perspective. Provide at least two references you used in your work.