

62.1: Postulates

Einstein discovered that the necessary modifications to Newtonian mechanics could be derived by assuming two postulates:

- Absolute uniform motion cannot be detected.
- The speed of light is independent of the motion of the source.

The first postulate says that all motion is relative-that there is no reference frame that all observers can agree to be absolutely at rest. The second postulate says that light does not obey the usual laws of velocity addition. For example, if someone is moving toward you at 99% of the speed of light and turns on a flashlight in your direction, you will measure the light's speed to be the same as if that person were at rest.

Although these postulates seem quite reasonable, they lead to some surprising consequences. Let's examine a few of those consequences.

62.1: Postulates is shared under a [CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/) license and was authored, remixed, and/or curated by LibreTexts.