

Epistemology

The Special Theory of Relativity of Albert Einstein

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The Albert Einstein's Special Theory of Relativity results from two statements, the two basic postulates of special relativity:

- The speed of light is the same for all observers, no matter what their relative speeds.
- The laws of physics are the same in any inertial (that is, non accelerated) frame of reference.

Given these two statements, Einstein showed how definitions of momentum and energy must be refined and how quantities such as length and time must change from one observer to another in order to get consistent results for physical quantities such as particle half-life. To decide whether his postulates are a correct theory of nature, physicists test whether the predictions of Einstein's theory match observations. Indeed many such tests have been made – and the answers Einstein gave are right every time!