

Parallel Glossary for Relativity Physics

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General Terms

body is a physical entity with *chronology* and *macronology*. **space of motion** is a 6D pair of absolutely interconvertible 3D Euclidean spaces of length and duration position, called *location* and *chronation*. **motion of a body** is a continuous change of its location and chronation. **metric of motion** is the extent of motion as measured by length or duration. **event** is a physical occurrence with (often minimum) length and duration.

Spatiocosm: 3D Space + 1D Time

Temporocosm: 1D Space + 3D Time

spacetime (spatiocosm) is the space of length and the radius of duration (time) in a 4D continuum (3+1) with distance and time absolutely interconvertible.

timespace (temporocosm) is the space of duration and the radius of length (stance) in a 4D continuum (1+3) with distime and stance absolutely interconvertible.

world line of a body is the 4D path the body traces in spacetime.

world line of a body is the 4D path the body traces in timespace.

proper length (or travel length) is the length of a motion measured by a rigid rod moving with it.

proper time (or travel time) is the duration of a motion measured by a clock moving with it.

speed of light is the speed of light in a vacuum, which equals 299 792 458 m/s; symbolized by c .

pace of light is the pace of light in a vacuum, which equals 3.335 641 ns/m; symbolized by κ .

modal speed is the maximum (“free flow”) speed of the mode of observation, independent of any object in motion, which serves as a general conversion between space and time; symbolized by c .

modal pace is the minimum (“free flow”) pace of the mode of observation, independent of any object in motion, which serves as a general conversion between time and space; symbolized by κ .

synchronize means to calibrate clocks for space-time; from Greek *syn* + *chron* + *ize* (“to occur at the same time”).

synmacronize means to calibrate measuring rods for 3D time + 1D space; from *syn* + *macron* + *ize* (“to occur at the same length”).

reference frame (or frame) is an abstract coordinate system and set of reference points in space-time that uniquely fix the coordinate system and standardize measurements. **rest frame** of a body is the reference frame in which the body is moving at zero speed, which is the time conversion pace.

reference timeframe (or timeframe) is an abstract coordinate system and set of reference points in time-space that uniquely fix the coordinate system and standardize measurements. **freelflow timeframe** of a body is the reference timeframe in which the body is moving at zero pace, which is the stance conversion speed.

Galilean space-time is a context in which the measurement of time is the same for all observers (i.e., absolute time), and the measurement of space is relative to the motion of each observer; the Galilean space-time transformation of space is: $r' = r - vt$.

Galilean time-space is a context in which the measurement of space is the same for all observers (i.e., absolute stance), and the measurement of time is relative to the motion of each observer; the Galilean time-space transformation of time is: $t' = t - ur$.

Lorentz transformation is the set of equations that relate space and time coordinates of reference frames moving at a constant velocity relative to each other.

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Lorentz space-time is the relativistic 3D space + 1D time. It includes a factor, γ , along with the modal speed, c : $r' = \gamma (r - vt)$ and $t' = \gamma (t - vr/c^2)$ with $\gamma = (1 - v^2/c^2)^{-1/2}$ such that $|v| < c$.

Lorentz time-space is the relativistic 1D space + 3D time. It includes a factor, λ , along with the modal pace, κ : $t' = \lambda (t - ur)$ and $r' = \gamma (r - ut/\kappa^2)$ with $\lambda = (1 - u^2/\kappa^2)^{-1/2}$ such that $|u| < \kappa$.