

Limiting Velocity at the Interface Between Causality and Virtuality

Adel F. Antippa

Computing Anticipatory Systems : CASYS'2000 - Fourth International Conference

Daniel M. Dubois, Ed.

American Institute of Physics Conference Proceedings

AIP CP 573, pp. 61-76 (2001)

Abstract

We take a new look at the postulates of special relativity, at inertial reference frames, and at photons as carriers of the invariant signal velocity. We explore the interrelation between limiting velocity, causality and virtuality, and try to answer the question of whether signals can be transmitted faster than light. That is do tachyons exist. We study the implications on the existence of tachyons, of spacetime dimensionality, causality, rotational symmetry, Lorentz invariance, the principle of relativity, and the non-conservation of parity. We describe the expected characteristics and natural habitat of tachyons, and briefly discuss their possible applications.