

About possible amendments to the first postulate of the special theory of relativity

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This work is devoted to the fundamental problems of physics, namely the check of the first postulate of the special theory of relativity about inertial frames of reference. The question of transition between inertial systems, which is bound to the need of their acceleration is considered in it. If an inertial frame of reference is bound to a physical body, then its property can be changed under an acceleration and this can influence further on its interaction with other bodies. From the point of view of STR a transition from one inertial system to another is defined by Lorentz transformation laws and the question of how this transition was carried out, is not considered. There is a certain contradiction between actual and ideal inertial frames of reference. The experiment on particle accelerators is offered for the check of the principle of an independence of a transition from one system to another from a way of this transition. In this work a possibilities of carrying out the experiment on check of the first postulate of the special theory of relativity about inertial frames of reference are discussed. The factors capable to influence emergence of the possible deviations from the special theory of relativity expanding the idea of it are considered. These factors are the choice of power range of the particles participating in the offered reversible experiment which is reduced to mutual substitution of a shell and a target and also the choice of suitable elements for its carrying out. The nature of acceleration of the studied particles belongs to the factors capable to influence on emergence of deviations too.

Primary author(s) : Prof. VORONTSOV, Victor (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute))

Presenter(s) : Prof. VORONTSOV, Victor (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute))

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