**Orlyansky O.Yu**

**SPECIAL RELYATIVITY WITHOUT PARADOXICAL POSTULATES**

*A special relativity is usually studied using Einstein's postulate of the independence of the velocity of light in vacuum from the radiation source velocity. According to the current opinion, the paradox of this postulate is the reason for the paradoxes of the theory, which continue to surprise and even cause resistance for more than a hundred years. The paper shows the falsity of such an opinion. Lorentz transformations are obtained without Einstein's postulate on the speed of light, without using the four-dimensional Minkowski space-time interval and without reference to electrodynamics and Maxwell's equations*. *Together with the Lorentz transformations, two other types of transformations are also obtained. These are the Galilean transformations and transformations that can be obtained from the Lorentz transformations by substitution *. *The possibility of obtaining three types of transformations from the principle of relativity is explained by the following.*

*The principle of relativity determines the equality of all inertial frames of reference, moving relative to each other with any achievable constant velocities. Such equality of reference systems is the same as the equality of all points and directions in the velocity space, that is, its homogeneity and isotropy. As is known, a homogeneous isotropic space admits the existence of three geometries with constant curvature (positive, zero, and negative). From this it follows that the principle of relativity is compatible with three types of universes that correspond to geometries with constant curvature in the velocity space. It follows that the principle of relativity is compatible with three types of universes that correspond to geometries with constant curvature.*

*The answer, what is our world, is given only by experiment. It clearly favors relativism and Lobachevskian geometry in velocity space. Additional postulates only narrow down, limit opportunities, prohibiting anything other than what they bring themselves.*

*The proposed method of obtaining all three transformations without additional postulates is elementary, broadens the understanding of the problem and does not cause resistance to “common sense”. This method is universal, not connected with a specific type of matter, and should be introduced into educational literature.*

***Key words:*** *special relativity, Lorentz transformations, velocity space.*

**References**

1. Resolution 1 of the 17th CGPM (1983) // From Bureau international des poids et mesures. URL: <http://www.bipm.org/en/CGPM/db/17/1/> (дата звернення: 31.07.2017).
2. Landau L.D. Teoreticheskaya fizika: v 10 t. T. 2.: Teoriya polya / L.D. Landau, E.M. Lifschits. – M.: Nauka, 1988. – 512 s.
3. Puankare A. O dinamike elektrona: Izbrannyie trudyi v treh tomah: T. 3. / A. Puankare. – M.: Nauka, 1974. – 772 s.
4. Eynshteyn A. K elektrodinamike dvizhuschihsya tel: Sobranie nauchnyih trudov v chetyireh tomah: T. 1. / A. Eynshteyn. – M.: Nauka, 1965. – 700 s.
5. Pays A. Nauchnaya deyatelnost i zhizn Alberta Eynshteyna / A. Pays. – M.: Nauka, 1991. – 568 s.
6. Pauli V. Teoriya otnositelnosti / V. Pauli. – M.: Nauka, 1965. – 328 s.
7. Stepanov S.S. A time-space varying speed of light and the Hubble Law in static Universe / S.S. Stepanov. – Phys. Rev. D 62 (2000) 023507.