

Kinematic Sets, without Global Coordinate Transforms

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Theory of kinematic sets is based on the theory of changeable sets [1, 2]. Kinematic sets are mathematical objects, in which changeable sets are equipped by different geometrical or topological structures, namely by metric, topological, linear and other spaces. Investigations in this direction may be interesting for astrophysics, because there exist the hypothesis, that in the large scale of Universe, physical laws (in particular, the laws of kinematics) may be different from the laws, acting in the neighborhood of our solar System.

An interesting fact is the existence of kinematics for inertial reference frames, in which different types of coordinate transformations co-exist in the same “Universe” and every particle may have its own value of “velocity of light”. We prove, that kinematics of this class do not allow global coordinate transforms.

- [1] Ya.I. Grushka, *Abstract concept of changeable set*. Preprint arXiv:1207.3751v1, (2012), (<http://arxiv.org/abs/1207.3751v1>).
- [2] Ya.I. Grushka, *Changeable sets and their application for construction of tachyon kinematics*. Proceedings of Institute of Mathematics NAS of Ukraine. **11**, (1), (2014), 192–227 (in Ukrainian).