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Orthogonal Basis and Motion in Finsler Geometry

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Finsler space is differentiable manifold for which Minkowski space is the fiber of the tangent bundle. To understand structure of the reference frame in Finsler space, we need to understand the structure of orthonormal basis in Minkowski space.

In this paper, I considered the definition of orthonormal basis in Minkowski space, the structure of metric tensor relative to orthonormal basis, procedure of orthogonalization. Linear transformation of Minkowski space which preserves the scalar product is called a motion. Linear transformation which maps the orthonormal basis into an infinitely close orthonormal basis is infinitesimal motion. An infinitesimal motion maps orthonormal basis into orthonormal basis.

The set of infinitesimal motions generates Lie algebra, which acts single transitive on basis manifold of Minkowski space. Element of twin representation is called quasimotion of Minkowski space. Quasimotion of event space is called Lorentz transformation.

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