SPACE IS THE SHADOW OF TIME

CHANGE OF TIME DUE TO SCALE CHANGES OF A QUANTIZED SCALING

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Berichte aus der Physik

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Change of Time due to Scale Changes of a Quantized Scaling and Alternative Geometric Representations of the Equations of Special and General Relativity

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Book

Varying scales of spatial distance, as known from redshift, are applied to time and analyzed by including physical action and quantized scaling. This leads to a modified Planckian constant h/c representing a force as well as to unit scale values for space and for time which are solely mathematically justified. Furthermore, the relationships between the special and general theories of relativity are described by means of irreducible basic mathematical building blocks and vividly represented geometrically. Relationships between algebra and geometry/topology are applied to both theories of relativity. Thus, the relationships of the special theory of relativity, in contrast to the Minkowski diagram, are geometrically figured as space and time proportions of a point of the invariant unit circle, as a 1-dimensional manifold. The proportions are complementary and dimensionless, the limits are pairs of 0 spheres. On this basis, the recognizability of worlds with different speeds of light is geometrically described and discussed. Geometric patterns can be interpreted both, as entanglements or as the emergence of dimensions. The Schwarzschild equation of general relativity, which describes the effect of a central mass, can basically be reduced to a hyperbola. The presented geometric representation of the general theory of relativity leads to a connection between the differential change of the spatial distance proportion and the differential change of the time proportion. for this is the definition of proper time by means of a guide-field according to Max von Laue and a variable speed of light. The lemniscate, as an inversion of a hyperbola on the unit circle, is interpreted physically. By this inversion, the interior and exterior of the unit circle can be mapped to itself in a transformation via reciprocal radii. The point of view of an observer is thus transformed from being located at the center of a coordinate system to infinity. The inversion circle itself becomes the event horizon. The interior of the unit circle becomes a black hole with a potential field, the center of which is without change of state, without time and without space. The present as an infinitesimal state change, past, future, entropy and time direction are discussed.

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