

# Gravity and Nature of Nuclear Matter

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All aspects of the Principle of General Covariance can be formulated on the basis of the seminal papers Einstein and Grossmann (1913) and Einstein (1914). This principle should be considered as the fundamental principle of nature and not just of general relativity, since there is too intimate connection between gravity and the rest to be considered separately. Really, one can show that the general covariant fundamental notion of the interval is determined not the Lorentz group but a general covariant bilateral symmetry. Among other things, this means that the Principle of General Covariance unravels the puzzle of time and predicts the duality of time. But the duality of time demonstrates that in certain sense the well-known idea of rotating rigid body (also mentioned as the Top) of classical mechanics is as fundamental as the idea of massive point particle, i. e., the first concept can be reduced to the second one at the fundamental (field–theoretical) level and this opens completely new possibilities to explain nature of nuclear matter – main subject of our message.

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