

**THE GENERAL THEORY OF RELATIVITY, METRIC
THEORY OF RELATIVITY AND COVARIANT
THEORY OF GRAVITATION.
AXIOMATIZATION AND
CRITICAL ANALYSIS**

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The axiomatization of general theory of relativity (GR) is done. The axioms of GR are compared with the axioms of the metric theory of relativity and the covariant theory of gravitation. The need to use the covariant form of the total derivative with respect to the proper time of the invariant quantities, the 4-vectors and tensors is indicated. The definition of the 4-vector of force density in Riemannian spacetime is deduced.

Keywords: general relativity; metric theory of relativity; covariant theory of gravitation; axiomatization.

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