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Quadratic Gravity and Non-Conservativity of Energy-Momentum Tensor Due to the Double Layers

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We demonstrate explicitly that in the quadratic gravity the energy-momentum tensor is automatically conservative. Thus, its non-conservation, i.e., the creation of the matter fields and particles straight from the geometry is possible only by the double layer formed on the singular hyper-surface where the curvature tensor undergoes a jump. These double layers describe the gravitational shock waves.

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