Abstract Submitted
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Application of Noether symmetry in f($\mathbf{R_{GHL}}$) Horava – Lifshitz gravity [1] MOLDIR ARZIMBETOVA, California State University, Fresno and Kazakh National University, Almaty, SHYNARAY MYRZAKUL , Kazakh National University, Almaty — We study the Noether symmetry of the general cosmological model using the behavior of the corresponding Lagrangian for infinitesimal generators of the desired symmetry. We explicitly calculate the form of the function f(R_{GHL}) for which such symmetries exist. It is shown that the resulting form f(R_{GHL}) gives an expansion according to a power law for the cosmological scale factor. Horava proposed a theory of quantum gravity, which takes into account the degree of renormalizability in ultraviolet radiation. This was achieved due to anisotropic scaling between space and time, and, therefore, it violates Lorentz invariance in the ultraviolet range. The infrared limit of the theory reproduces the general theory of relativity for a particular choice of parameter, namely λ =1. Lorentz symmetry breaking is performed by the preferred foliation of three-dimensional spatially similar hypersurfaces, which, in turn, divide the coordinate into space and time. This allows us to write down the Einstein-Hilbert action with higher spatial derivatives of the metric. This improves the ultraviolet behavior of the graviton propagator and displays a renormalizable theory of power counting. Moreover, the action has only second-order time derivatives that prevent the presence of ghosts in theory.

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