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**Mimetic inflation.** (English) Zbl 1459.85005

Summary: We study inflationary solution in an extension of mimetic gravity with the higher derivative interactions coupled to gravity. Because of the higher derivative interactions the setup is free from the ghost and gradient instabilities while it hosts a number of novel properties. The dispersion relation of scalar perturbations develop quartic momentum correction similar to the setup of ghost inflation. Furthermore, the tilt of tensor perturbations can take either signs with a modified consistency relation between the tilt and the amplitude of tensor perturbations. Despite the presence of higher derivative interactions coupled to gravity the tensor perturbations propagate with the speed equal to the speed of light as required by the LIGO observations. Furthermore, the higher derivative interactions induce non-trivial interactions in cubic Hamiltonian, generating non-Gaussianities in various shapes such as the equilateral, orthogonal and squeezed configurations with observable amplitudes.

**MSC:**
85A40 Astrophysical cosmology
83D05 Relativistic gravitational theories other than Einstein’s, including asymmetric field theories

**Keywords:**
cosmology of theories beyond the SM; classical theories of gravity; effective field theories

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**References:**
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