

Vector fields and gravitational wave propagation

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We study the effects of cosmological vector fields on the propagation of gravitational waves (GWs). The so-called dark sector in Cosmology remains unexplained, even though it makes up most of the content of the Universe. This fact has led to the proposal of several models of dark matter, dark energy or dark radiation. Among them, we can find some based upon vector fields (such as ultralight vector fields, which contribute to the matter content). Vector fields generically contribute with a non-zero anisotropic stress, thus affecting GWs, which are becoming increasingly important in observational astrophysics and cosmology. In this talk we focus on the effect of vectors on GW propagation. We present some phenomenological features, which include suppression, anisotropy and linear polarization of GWs, and show results for some specific models.

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