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The impact of the Lorentz symmetry violation on the CMB polarization

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In the standard cosmological scenario, no circular polarization is predicted for Cosmic Microwave Background (CMB) radiation. However, in the frame of moving particle, Lorentz symmetry can violate and lead to circular polarization for CMB radiation. We estimate the circular polarization power spectrum $C_l^{V(S)}$ in CMB radiation due to Compton scattering in presence of the Lorentz symmetry violation. We show that the V-mode power spectrum can be obtained in terms of linear polarization power spectrum at the last scattering surface.

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