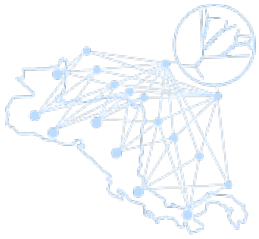

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CMB spectral μ-distortion during phase transition in the Bound Dark Matter (BDM) model

Thursday 26 November 2020 13:30 (30 minutes)

Spectral distortions of the CMB provide independent and complementary probes to study energy injection processes in the early universe. In this work was obtained the spectral μ-distortion associated with phase transition of the dark particles in the BDM model. Several scenarios were simulated numerically with parameters: $a_c = [4.9 \times 10^{-7}, 3.3 \times 10^{-6}]$, $f_{eff} = [0, 1]$, $v_c = [0, 0.71]$, $f_x = 10^{-2}$, 10^{-3}, 10^{-4}, 10^{-5} and 10^{-6}. Some constrictions were obtained for FIRAS sensivity for $a_c < 1.68 \times 10^{-6}$ ($f_x = 10^{-2}$, $f_{eff} = 0.5$) and for PIXIE sensivity $a_c > 1 \times 10^{-6}$ ($f_x = 10^{-5}$, $f_{eff} = 0.5$).

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