

Probing interacting Dark Energy models and scattering of baryons with Dark Matter in the light of 21cm signal

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The EDGES experiment has observed an excess trough in the brightness temperature of the 21cm absorption line of neutral Hydrogen atom (HI) from the era of cosmic dawn. We consider possible interaction of Dark Matter and Dark Energy fluid along with the cooling off of the baryon matter by its collision with Dark Matter to explain the EDGES like excess absorption feature of the 21cm signal. We make use of three different Dark Matter-DarkEnergy (DM-DE) interaction models to test the viability of those models in explaining the EDGES like results. The modification of the evolution of Hubble parameter due to DM-DE interactions influences the optical depth of HI 21cm line as well as the baryon temperature and thus effects brightness temperature of 21cm signal. In addition we also find that DM-DE interaction enables us to explore Dark Matter with varied mass regimes and their viabilities in terms of satisfying the above mentioned EDGES result.

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