

21-cm observations and warm dark matter models

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Recent report of 21-cm absorption signal by EDGES experiment has raised considerable interest in the dark matter (DM) community. Taking the reported EDGES result at face value, a number of forthcoming papers constrained masses of DM particles and their interaction strengths with Standard Model particles.

However, the connection between the formation of structures and 21-cm signal requires knowledge of parameters that describe star formation and radiation at early times.

We use the recent measurements by EDGES to demonstrate that the robust warm dark matter (WDM) bounds are in fact weaker than those given by the Lyman- α forest method and other structure formation bounds.

We also show that resonantly produced 7 keV sterile neutrino dark matter model is consistent with these data.

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