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Searching the warm dark matter signatures from Cosmic Dawn and Reionization epoch

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The origin of dark matter (DM) is one of the most intriguing questions in modern physics.
One of the most promising DM models is the so-called 'warm' dark matter (WDM) with particle mass in the range of keVs.
The signature of warm dark matter could be fewer small size dark matter halos and small mass galaxies in the early Universe (compared to the standard "cold dark matter" (CDM) scenario).
The Cosmic Dawn and Reionization epoch are an imprint of structure formation in the Universe, which depends both on the DM nature and baryonic processes. Therefore the study of this era may shed light on the properties of the dark matter particles as well as on the of baryonic processes during the formation of earliest structures in the Universe.
We analyze the different observational datasets about the Cosmic Dawn epoch and find that the thermal relic warm dark matter with particle mass 2 keV is in an agreement with these observations.

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