



Contribution ID: 148

Type: **Talk in the parallel session**

Constraints on the (warm) nature of dark matter from the first billion years

Thursday, 8 July 2021 16:55 (25 minutes)

Most astrophysical constraints on the warm dark matter particle mass have been limited to observations covering the last 12 billion years of the Universe. However, over the past few years, data from the Hubble Space Telescope and the EDGES (21cm) collaboration have allowed such constraints to be extended well into the first billion years, a crucial epoch inaccessible by any other means. In this talk I will present a semi-analytic model of galaxy formation & 21cm emission that jointly tracks the dark matter and baryonic assembly of galaxies through cosmic time. I will use this to highlight the role of different dark matter models in shaping the observable properties of early galaxies and show how forthcoming instruments such as the James Webb Space Telescope (JWST) can be used as an invaluable “Dark Matter Machine” in order to distinguish between cold and warm dark matter cosmologies using early galaxies. Finally, I will show how the EDGES data can already be used to rule out WDM lighter than 3 keV.

Primary author: DAYAL, Pratika (Kapteyn Astronomical Institute)

Presenter: DAYAL, Pratika (Kapteyn Astronomical Institute)

Session Classification: Dark Matter: Beyond LCDM

Track Classification: Dark Matter: Dark Matter: Beyond LCDM