



Contribution ID: 34

Type: **Talk in the parallel session**

Primordial black holes as dark matter candidates in the Galactic halo

Tuesday, 6 July 2021 10:30 (20 minutes)

There has recently been interest in Primordial Black Holes (PBHs) as a dark matter (DM) candidate. Constraints on the PBH abundance is obtained through lensing, accretion, dynamical effects and also the analysis of the gravitational wave (GW) events. PBHs may exist and populate today the galactic halos with a wide mass range, from about $10-14M_{\text{Sun}}$ up to thousands, or more, of solar masses. Gravitational microlensing is a powerful method to constrain the PBH abundance in the Milky Way halo. We calculate the optical depth and the rate of microlensing events caused by PBHs eventually distributed in the Milky Way halo, towards some selected directions of observation, as the Galactic bulge, the Large and the Small Magellanic Clouds and the M31 galaxy. The capability of the Euclid space telescope to constraint the PBH abundance is also discussed.

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Session Classification: The Nature of Galactic Halos

Track Classification: Dark Matter: The Nature of Galactic Halos