



Contribution ID: 874

Type: **Talk in the parallel session**

Dark matter as Planck relics without too exotic hypotheses

Thursday, 8 July 2021 18:45 (25 minutes)

The idea that dark matter could be made of stable relics of microscopic black holes is not new. In this article, we revisit this hypothesis, focusing on the creation of black holes by the scattering of trans-Planckian particles in the early Universe. The only new physics required in this approach is an unusually high-energy scale for inflation. We show that dark matter emerges naturally and we study the question of fine-tuning. We finally give some lines of thoughts for a possible detection.

Based on: Barrau, Martineau, Moulin, Ngono, Phys.Rev.D 100 (2019) 12, 123505

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Session Classification: Dark Matter: Beyond LCDM

Track Classification: Dark Matter: Dark Matter: Beyond LCDM