

Contribution ID: 35

Type: **not specified**

Primordial Black Hole Dark Matter from Scalar Fields and Fundamental Forces

Friday, June 30, 2023 10:00 AM (45 minutes)

Primordial black holes (PBHs) from the early Universe constitute an attractive non-particle dark matter (DM) candidate. I will present several generic mechanisms of PBH formation based on scalar fields, highlighting how astrophysical signatures of PBHs can help distinguish them. Intriguingly, microlensing observations could be pointing to first hints of PBHs associated with yet unexplored regimes of the fundamental QCD strong force dynamics or bubble multiverse. I will further highlight connections of PBHs with various astronomical puzzles and signatures, charting prospects for discovery.

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