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Particle Physics at LPTHE

Mardi 28 Juin 2022, 14 :00
LPTHE, Library (4th floor), and zoom link in comments(https ://zoom.us/j/4750940347?pwd=WU54TUdEQmM0ZEFtaWpaa2pYM21RQT09)
Domaines : astro-ph—hep-ph

Titre : *Leptogenesis and Dark Matter in the presence of Primordial Black Holes*

Orateur : **Suruj Jyoti Das (Indian Institute of Technology Guwahati)**

Résumé : *Primordial Black Holes (PBH), formed through various mechanisms in the early universe, can have many interesting cosmological consequences. While PBH can evaporate by emitting Hawking radiation, they can be stable on cosmological scales if sufficiently heavy, potentially giving rise to some or all of dark matter (DM). Even if lighter PBH are not long-lived enough to be DM, they can still play non- trivial roles in genesis of DM as well as baryogenesis. PBH can lead to non- thermal source of leptogenesis and dark matter as well as dilution of thermally generated lepton asymmetry/ dark matter via entropy injection. In this talk, I will discuss about such effects of light PBH which evaporate before Big Bang Nucleosynthesis (BBN), considering some particle-physics setup. We constrain the resulting parameter space of the particle physics setup, along with PBH sectors from the requirement of generating correct DM abundance and baryon asymmetry. We also explore whether DM with no other interactions apart from gravity can be produced with the correct abundance solely from PBH evaporation.*
