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Primordial Black Holes and Gravitational Wave Observations

Tuesday, 19 October 2021 16:00 (2 hours)

Primordial Black Holes might comprise a significant fraction of dark matter in the Universe and can give rise to observable signatures at current and future gravitational wave experiments. First, we review the PBH model and discuss how accretion and clustering may affect the properties of PBH binaries. Second, we confront the PBH model with LIGO/Virgo data showing its upsides and shortcomings, by also including state-of-the-art astrophysical models in a multi-population inference. Finally, we discuss how 3G detectors, such as Einstein Telescope and Cosmic Explorer, may be able to discover a PBH population by searching for high redshift merger events.

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Session Classification: The KEK-PH + KEK-Cosmo joint workshop on "Primordial Black Holes"