SEMPARIS – Séminaires en région parisienne

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Seminaire exceptionnel

Jeudi 6 Décembre 2018, 14 :00
APC, 454A
Domaines : astro-ph

Titre : *Gravitational Wave signatures of Primordial Black Holes as Dark Matter*

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Résumé : *More than twenty-two years ago, we predicted that massive primordial black holes (PBH) would form via the gravitational collapse of radiation and matter associated with high peaks in the spectrum of curvature fluctuations, and that they could constitute all of the dark matter today. In 2015, we predicted the clustering and broad mass distribution of PBH, which peaks at several Msun, and whose high-mass tails could be responsible for the seeds of all galaxies. Since then, LIGO has detected gravitational waves from at least five merger events of very massive black hole binaries. We propose that they are PBH, and predict that within a few years a less than one solar mass PBH will be detected by AdvLIGO-VIRGO, and that in 10 years, an array of GW detectors (i.e. LIGO, VIRGO, KAGRA, INDIGO, etc.) could be used to determine the mass and spin distribution of PBH dark matter with 10new paradigm shift in the understanding of the nature of dark matter.*