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Primordial Black Holes and Stochastic Gravitational Waves in the Sound Speed Resonance Cosmology

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Primordial black hole (PBH) is a kind of important Dark Matter candidate of cosmological origin. And it is also a potential seed of supermassive black holes. However, the formation and the astrophysical effects of PBH still remain unclear. From theoretical perspective, the speaker and his collaborators proposed sound speed resonance (SSR) mechanism as an efficient novel effect to produce PBH. The speaker will briefly review PBH and SSR mechanism and summarize what they have done in this topic. After that, he will introduce their recent work on the SSR mechanism of stochastic gravitational waves which might be a new probe for new physics in the early universe.

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