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# How Primordial Black Holes constrain leptogenesis

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The parameter spaces of leptogenesis and ultralight ($M_{\rm PBH} \leq 10^9$g) Primordial Black Holes (PBHs) are notoriously difficult to constrain, but while experiments struggle to probe sterile neutrino masses heavier than a few GeV, the new window into the early universe opened by Gravitational Wave (GW) astronomy offers realistic hopes of detecting GW signals associated with PBHs. Since ultralight PBHs would be born, live and die in or around the era of leptogenesis, even tiny populations can have profound effects on a wide range of leptogenesis models. In particular, for $M_{\rm PBH} \geq 10^6$g, the entropy injection from PBHs has been shown to be highly incompatible with thermal leptogenesis, leading us to draw stringent mutual exclusion limits between the two scenarios. In this talk I discuss how GW observations of PBHs can rule out models of leptogenesis far beyond the reach of direct detection experiments, and how searches for light sterile neutrinos are impacted. I elucidate the fascinating interplay between leptogenesis and PBHs in the early universe, and show how we can glean information about leptogenesis and PBHs from future experimental results. I will also cover some recent and highly interesting developments concerning particle processes in hot-spots.

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