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Pulsar timing array search for scalar induced gravitational waves and primordial black holes

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In this work, we consider the formation of primordial black holes from large curvature perturbations at scales unconstrained by CMB observations. In addition to black holes, those curvature perturbations would induce gravitational waves able to explain the possible signal observed in the last NANOGrav 12.5-years data set and the second IPTA data release. We use here a log-normal profile for the curvature perturbation at small scales and perform bayesian search to find the parameter regions able to explain the signal. We compare this with constraints on primordial black holes.

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Session Classification: Primordial Black Holes