

Exploring new physics with pulsar timing arrays

Earlier this year several pulsar timing arrays unveiled the first detection of the stochastic gravitational wave background at nano-Hertz frequencies. The background could potentially arise from myriad merging black holes or –arguably more exciting –an event in the early cosmos. In this talk, I will discuss two recent works on the origin of the new signal: First, I will show under which conditions dark sector phase transitions can serve as an explanation compatible with constraints from precision cosmology. In a second part I will explore how merging clusters of primordial black holes present a promising complementary explanation. I conclude with a comment on the question of the likelihood of a new physics explanation in a Bayesian framework.

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