Contribution ID: 27 Type: not specified

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.

Primary authors: TASILLO, Carlo; SCHMIDT-HOBERG, Kai; DEPTA, Paul Frederik (Max-Planck-Institut für Kernphysik); SCHWALLER, Pedro (Mainz University); KONSTANDIN, Thomas; BRINGMANN, Torsten (University of Oslo)

Presenter: TASILLO, Carlo