

# Exploring cosmological phase transitions with pulsar timing arrays

*Wednesday, 3 July 2024 12:55 (5 minutes)*

Last year pulsar timing arrays unveiled the first detection of a stochastic gravitational wave background at nano-Hertz frequencies. The background could potentially arise from a population of merging supermassive black holes or –arguably even more exciting –an event in the early cosmos. In this talk, I will discuss the possibility that the recently measured signal stems from a phase transition that happened within the first second after the Big Bang. The specific focus of the talk will be under which conditions phase transitions in a dark sector can serve as an explanation compatible with constraints from precision cosmology. I will conclude with a comment on the question of the likelihood of a new physics explanation.

## Title of the Poster/Talk

Exploring cosmological phase transitions with pulsar timing arrays

## Related Papers/Preprints

Main focus of talk is on <https://inspirehep.net/literature/2669369>. Some comments on <https://inspirehep.net/literature/2673485> will be made.

**Primary author:** TASILLO, Carlo (DESY Hamburg)

**Co-authors:** Dr SCHMIDT-HOBERG, Kai (DESY); DEPTA, Paul Frederik (Max-Planck-Institut für Kernphysik); Dr KONSTANDIN, Thomas (DESY); BRINGMANN, Torsten (University of Oslo)

**Presenter:** TASILLO, Carlo (DESY Hamburg)

**Session Classification:** Young Scientist Forum