

# Single pulsar analysis on PSR J1909-3744 : Limits on the low-frequency stochastic gravitational wave background

*vendredi 11 octobre 2019 11:00 (15 minutes)*

Pulsar Timing Array (PTA) projects intend to detect low-frequency gravitational waves (GWs) by probing their imprints on times of arrival (TOAs) of pulsar radio signals. PTAs are sensitive to nanohertz GWs, corresponding for instance to the emission from super-massive black hole binaries (SMBHBs). One expects to measure the superposition of continuous GWs originating from the cosmic population of such objects as a stochastic signal. Individual nearby massive systems could also produce a detectable GW signal that rises above the gravitational wave background. Precise and high cadence pulsar timing observations are carried out over a long time span in order to obtain highly accurate (sub  $\mu$ -s) pulsar TOA residuals. Observed with the Nançay Radio Telescope since 2004, PSR J1909-3744 is one of the most stable pulsar known today (timing precision  $< 100$  ns). I will present some preliminary results on a gravitational wave background upper-limit study for this pulsar.

**Auteur principal:** CHALUMEAU, Aurélien (APC - LPC2E)

**Orateur:** CHALUMEAU, Aurélien (APC - LPC2E)

**Classification de Session:** Groupe de travail: Méthodes d'analyse des données