
Pulsar Timing Array for observing gravitational waves sources

Antoine Petiteau*¹

¹AstroParticule et Cosmologie (APC - UMR 7164) – CEA, Université Paris VII - Paris Diderot, Observatoire de Paris, IN2P3, CNRS : UMR7164 – APC - UMR 7164, 10, rue Alice Domon et Léonie Duquet, F-75205 Paris Cedex 13, France

Résumé

The timing of an array of millisecond pulsars (PTA) not only makes it possible to understand pulsar astrophysics but also to observe sources emitting gravitational waves (GWs) in the nanoHertz frequency range. Few tens of millisecond pulsars are currently monitored by the PTA community for reaching now a sensitivity where the detection of realistic GW emission become possible. A PTA based on the Square Kilometer Array (SKA) makes it possible to have a real observatory for sources emitting GW in nano-Hertz regime. The French community organized around Nançay radio telescope is very active in the whole PTA activities from pulsars observations to GW data analysis. In this talk we will show how the PTA can detect GW, the expected gravitational wave sources, the current activities of PTA community in particular within the French collaboration and the potential on SKA for PTA.

*Intervenant