Contribution ID: **17** Type: **not specified**

Advanced course: GW

Tuesday 6 February 2024 13:30 (1h 15m)

Title: GW detection with PTAs

Abstract:
In this lecture, we will review the basics of Gravitational Waves (GWs) detection using Pulsar Timing Arrays (PTAs). We will start by discussing how GWs perturb the apparent period of pulsars and derive the famous Hellings and Downs correlation curve describing the correlation of these perturbations among pairs of pulsars. Armed with these results, we will look into methods to dig out these GW-induced perturbations from detector and astrophysical noise and characterize possible GW signals. Finally, we will review the recent results presented by several PTA collaborations claiming the presence of a GW background in the nHZ window and discuss possible interpretations of this background.

Presenter: MITRIDATE, Andrea (T (Cosmology))