Contribution ID: **174** Type: **Plenary/Parallel talk**

Standard Siren Cosmology: The new dark sirens constraints and perspectives of a novel hybrid method.

Tuesday 23 August 2022 14:10 (20 minutes)

The detection of gravitational waves (GW) has opened a new window for cosmology. The current tension between the measurement of the Hubble constant H0 from Cosmic Microwave Background and Supernova analyses makes an independent, standard siren measurement of H0 from gravitational waves particularly interesting.
However, up to date, the astronomical community has confidently identified only one optical counterpart to a GW event, GW170817. In the cases where no counterpart is identified, it is possible to use a statistical approach, also known as the "dark siren"method, which needs a complete galaxy catalog over the GW localization area. In this contribution, we present a new constraint on the Hubble constant using a sample of well-localized gravitational wave events detected up to as statistical standard sirens, using data from Dark Energy Spectroscopic Instrument (DESI) imaging combined with the bright standard siren measurement from GW170817.
Due to the possible association of the gravitational-wave (GW) binary black hole (BBH) merger GW190521 with a flare in the Active Galactic Nuclei (AGN) J124942.3+344929, we explore the possibility of Standard Sirens in association with BBH flares. Current constraints suggest that from 25% to 80% of BBHs are associated with AGN disks. Furthermore, our formalism allows us to jointly infer cosmological parameters from a sample of BBH events that include chance coincidence flares.

Authors: R. BOM, Clecio (Centro Brasileiro de Pesquisas Físicas); Dr PALMESE, Antonella (University of California, Berkeley)

Presenter: R. BOM, Clecio (Centro Brasileiro de Pesquisas Físicas)

Session Classification: Parallel Session Lecture Room

Track Classification: Gravitational waves and black holes