Contribution ID: **37** Type: **Plenary/Parallel talk**

Cosmology With Bright Standard Sirens

Tuesday 23 August 2022 14:30 (20 minutes)

Since the first gravitational wave detection from a merging binary black hole system by the large interferometers LIGO, a new window of the Universe was opened leading us to use these waves to probe the expansion of the Universe. Gravitational wave sources with electromagnetic counterparts, called bright standard sirens, are very useful to cosmology as their luminosity distances can be measured from the gravitational wave signal amplitude and their redshifts from the host galaxy identification. As the current gravitational waves detectors have detected only one bright standard siren, we explore the power of future third generation detectors, such as Einstein Telescope and Cosmic Explorer, to detect them, and perform forecasts on cosmological analysis with them. We show that a few hundred bright sirens, detected by Einstein Telescope, is more than enough to constrain H_0 with better accuracies than that one measured by SH0ES. We also show how many detections will be required to rank nested cosmological models and how the distributions of these detections can affect our results.

Author: MENDONÇA, Josiel (Universidade Federal do Rio Grande do Norte)

Co-author: STURANI, Riccardo

Presenter: MENDONÇA, Josiel (Universidade Federal do Rio Grande do Norte)

Session Classification: Parallel Session Lecture Room

Track Classification: Gravitational waves and black holes