Contribution ID: **30** Type: **not specified**

Constraining the Dark Energy Equation of State: Forecasts for the Era of Multi-Band Gravitational Wave Cosmology

The Dark Energy Equation of State is not a direct observable. Some authors have suggested a connection between the Hubble tension and dynamical dark energy models, $w(z)$, supported by the recent DESI results, e.g., the CPL parameterization. Model-independent reconstructions —implemented with cubic splines, Gaussian processes, etc. —also suggest a dynamical behavior and generally make use of the luminosity distance $D_L(z)$. Gravitational wave observations from standard sirens provide a direct measurement of $D_L(z)$, allowing $w(z)$ to be constrained more directly and robustly, bypassing systematic errors. Our objective is then to generate simulated data assuming dynamical $w(z)$ parameterizations in order to make forecasts for upcoming surveys using Fisher matrix techniques. The application of inference methods, such as Markov Chain Monte Carlo or model-independent reconstructions, will then allow us to test the number of GW observations required to recover the known $w(z)$ from the simulations.

Author: CARLOS RIBEIRO, Sanderson (Universidade Estadual de Londrina (UEL))

Co-authors: DEMÉTRIO, Luiz Felipe (demetrio.luizfelipe.fis@gmail.com); PENNA-LIMA, Mariana (Universidade de Brasília); HILGERT PACHECO, Mayara (Brazilian National Institute for Space Research)

Presenter: CARLOS RIBEIRO, Sanderson (Universidade Estadual de Londrina (UEL))