

Contributed Talk

Name: Gabriel Andres Piovano

Position: PhD Student

Affiliation: Sapienza, University of Rome

Title: Assessing the detectability of the secondary spin in extreme mass-ratio inspirals with fully-relativistic numerical waveforms

Abstract: Extreme mass-ratio inspirals (EMRIs) are unique sources of gravitational waves (GW). A secondary in EMRIs completes hundreds of thousands of orbits in the strong-field regime near a supermassive black hole. Hence, an EMRI signal provides a faithful atlas of the primary spacetime, which allow testing astrophysics and fundamental physics with unprecedented precision. One of the key elements in EMRI dynamics is the spin of the secondary, which gives a relevant contribution to the GW waveform. This talk will present our results of a Fisher-matrix error analysis of EMRI parameters with fully relativistic numerical waveforms. Our analysis mainly focused on the measurability of secondary spin in a Kerr background for circular orbits, taking into account the motion of the LISA constellation and higher harmonics. I will discuss the effect of higher harmonics in the error of the parameters and the detectability of the secondary spin. This talk will be based on the preprint <https://arxiv.org/abs/2105.07083>, submitted on May 2021.