Simulation of the binary black hole merger rate with ultraluminous X-ray source pro- genitors

Thursday 16 September 2021 14:30 (15 minutes)

Ultraluminous X-ray sources (ULXs) were first discovered in the 1980s by the Einstein Observatory. The most interesting property of ULXs is that they exceed the Eddington luminosity of a neutron star. Data from the 2XMM-Newton and Chandra contain 470 ULX candidates in 238 galaxies (Walton et al. 2011) and 629 ULX candidates in 309 galaxies (Kovlakas et al. 2020), respectively. In this study, we use the properties of ULXs in these catalogues to simulate a population of ULXs with realistic astrophysical distributions. Assuming that all intermediate-mass BH-BH mergers evolved through a ULX phase as in Finke & Razzaque (2017), we compute the merger rate of intermediate-mass black hole binaries in the local universe using the simulated ULXs population.

Abstract field

Author: NYADZANI, Lutendo (University of Johannesburg)
Co-author: RAZZAQUE, Soebur (University of Johannesburg)
Presenter: NYADZANI, Lutendo (University of Johannesburg)
Session Classification: Multi-Messenger & Astro-Particle

Track Classification: Multi-Messenger and Astro-particle