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A machine learning approach to discover core collapse supernovae

Thursday, 6 October 2022 11:00 (30 minutes)

The recent discovery of gravitational waves and high-energy cosmic neutrinos, marked the beginning of a new era of the multimessenger astronomy. These new messengers, along with electromagnetic radiation and cosmic rays, give new insights into the most extreme energetic cosmic events. The detection of gravitational waves from core-collapse supernova explosions is a challenging task, yet to be achieved, in which it is key the connection between multiple messengers, including neutrinos and electromagnetic signals. In this talk, I present a method for detecting these kind of signals based on machine learning techniques. To test its robustness signals were injected in the real noise data taken by the Advanced LIGO-Virgo network during the second observing run, O2, it would have been possible to reach the event distance values up to 14 kpc.

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