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Gravitational-Wave Low-Latency Burst Searches

Abstract

Gravitational wave (GW) astronomy is a decade old and it has brought plentiful discoveries and surprises, but we are still at the beginning of the journey of exploring the Universe with GWs. The recent fourth observing run of LIGO-Virgo-KAGRA brought 254 public alerts of merging compact objects, and most of them are already confirmed. In my talk, I will present the low-latency burst search results with coherent WaveBurst (cWB). The analysis was split into a dedicated search for compact binaries (cWB-BBH) and a generic search (cWB-AllSky). For the first two parts (from May 14, 2023, to January 28, 2025) of the fourth observing run, the cWB-BBH alone identified 74% of all public alerts. I will also show a comparison with the results from the Gravitational-Wave Transient Catalogs.