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PyGRB: A matched filtering triggered gravitational-wave search pipeline

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(pdf version attached)

Ever since the observation of GW170817 provided evidence for binary neutron star mergers as sources of gravitational waves and other transient emissions such as short gamma-ray bursts, the development of electromagnetically informed gravitational-wave analysis pipelines has gained relevance in the astrophysics community [2, 1, 3, 4]. In this talk, I will illustrate the most recent implementation of PyGRB, a coherent gravitational-wave search that uses matched filtering and targets the time and sky locations of electromagnetic transients, typically short gamma-ray bursts. The coherent matched filtering implementation for a multidetector network will be shown in detail, highlighting differences with respect to typical all-sky coincident searches. Finally, performance measurements and test runs will be shown as proof of concept for its usage.

References
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