Poster Session #F
Gravitational Wave detectors and other sources

F05

A search algorithm for long duration gravitational wave transients

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PySTAMPAS is a new data analysis pipeline designed to search for long transient gravitational wave signals in ground-based interferometers data. Long transient GW refer to a class of signals with duration in the range of 1-1000s . Such signals could originate from a wide range of astrophysical processes : accretion disk instabilities around black holes, deformations in magnetars, BNS post-merger emission, core-collapse supernovae... As these processes are still poorly modelized, searches have to rely on unconstrained detection methods that make few or no assumptions on the signal morphology. The search algorithm consists in looking for excess power in cross-correlated data from a network of GW detectors. It is implemented in a computationally efficient way adapted to all-sky, all-time searches on year-long data and intends to maximize detection sensitivity for a wide range of signal morphologies. Monte-carlo studies and the re-analysis of LIGO second observing run done with this pipeline show an increase in detection sensitivity by factors 1.3 - 2 compared to previous long-duration searches. Following the recent identification of a sample of Gamma-Ray Bursts with potential Magnetar Giant Flare origin (Burns et. al 2021), we present results of a follow-up study for long duration GW emission targeting 3 of these magneta giant flares.