

Identification and downranking of non-stationarity in LIGO data

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Data from the Laser Interferometer Gravitational-wave Observatory (LIGO) can be highly non-stationary, which means the broadband detector noise can change on the order of tens of seconds. Transient searches of gravitational waves, such as those from colliding black holes, estimate this noise in order to construct a signal-to-noise ratio timeseries of the data, and thereby identify candidate gravitational-wave events. During times of non-stationarity we see a higher rate of false events being reported. To accurately separate signal from noise, it is imperative to take in to account the changing detector state into gravitational-wave searches. This talk will present a new approach to identify non-stationarity in LIGO data from the second observing run. We will also discuss a method for downranking candidate gravitational-wave events found by the PyCBC pipeline during times of non-stationarity, thereby increasing our confidence of any putative signals found.