Abstract Submitted
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Classifying glitches and improving data quality of Advanced LIGO gravitational-wave searches[1] MARCO CAVAGLIA, University of Mississippi, JADE POWELL, University of Glasgow, DANIELE TRIFIRO, University of Mississippi, IK SIONG HENG[2], University of Glasgow, LIGO COLLABORATION — Noise of non-astrophysical origin contaminates science data taken by the Advanced Laser Interferometer Gravitational-wave Observatory (aLIGO) and Advanced Virgo gravitational-wave detectors. Characterization of instrumental and environmental noise transients has proven critical in identifying false positives in the first aLIGO observing run O1. In this talk, we present three algorithms designed for the automatic classification of non-astrophysical transients in advanced detectors. Principal Component Analysis for Transients (PCAT) and an adaptation of LALInference Burst (LIB) are based on Principal Component Analysis. The third algorithm is a combination of a glitch finder called Wavelet Detection Filter (WDF) and machine learning techniques for classification. PCAT was used in O1 and earlier engineering runs to identify and characterize observed noise transients in aLIGO data. LIB and WDF are expected to join the quest in the upcoming aLIGO-Advanced Virgo observing run O2.

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