

Abstract Submitted  
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**Development of a Real Time Earthquake Plotter for Use in Monitoring LIGO Detectors** GRACE JOHNS, SCOTT REID, Christopher Newport Univ, LIGO SCIENTIFIC COLLABORATION COLLABORATION — The LIGO Scientific Collaboration (LSC) is a group of scientists and researchers dedicated to studying gravitational waves, black holes, and other astrophysical phenomena, through the use of laser interferometer detectors. When two black holes collide, they release massive amounts of energy in the form of gravitational waves, which we are then able to detect. In addition to these waves, LIGO also observes everyday movement from people and vehicles, environmental movement from phenomena such as wind and earthquakes, as well as small movement within the detectors themselves. We characterize this extra movement as “noise” in the data. Our research involved developing and improving a program that graphs real time data from earthquake sensors. We adjusted the plotter to include a more effective filter, as well as several GUI features which allowed us to see when earthquakes which would be detrimental to our data are coming. We then have time to switch the interferometers into “earthquake mode,” a state that helps diminish the amount of time the LIGO detectors would be producing unusable data.

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