

Abstract Submitted  
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**Observing the Correlation Between Scattering, Anthropogenic Noise, and Astronomical Range in LIGO Detectors** NII-BOI QUARTEY, MARISSA WALKER, Christopher Newport Univ — The Laser Interferometer Gravitational-wave Observatory (LIGO) is a large scale observatory capable of detecting gravitational waves. However, transient, systematic noise events are present in the detector’s data. We call these events “glitches,” and they can produce false gravitational-wave (GW) triggers in our data analysis pipelines. To best identify true GW events, these glitches must be well understood and removed. After using a custom pipeline called Omicron to find glitches in the data, the Gravity Spy project helps LIGO scientists better understand these glitches by using machine learning to classify them by their shape. By calculating the rate at which glitches occur for each category, we can see how different types of glitches increase or decrease in frequency. I will present plans for a study exploring how we can use the average rate of glitches over time to characterize different types of noise in the LIGO detectors.

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