Bayesian Inference for Fast Scattering Glitches

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Data collected by gravitational wave (GW) interferometers such as the Laser Interferometer Gravitational-wave Observatory (LIGO) is permeated by noise as a result of various sources of environmental interference. Parameter estimation pipelines such as Bilby used to analyse LIGO data assume that the noise in GW data is Gaussian and stationary: an assumption contradicted by the nature of non-Gaussian transient noise "glitches" prevalent within the data. We have constructed a mathematical model that emulates the waveform of fast scattering glitches, which we implemented into Bilby to perform tests of the model's robustness in glitch mitigation efforts. The incorporation of this model will facilitate the efficient subtraction of real fast scattering glitch instances from GW strain data, allowing for improved analysis for future observing runs.