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Identifying scattering noise in LIGO using a time-varying filter approach for empirical mode decomposition. GUILLERMO VALDES, Texas AM University, ALESSANDRO LONGO, STEFANO BIANCHI, Virgo — The noise produced by light being scattered from objects limits the gravitational-wave observatories' sensitivity. This noise follows a defined model relative to the object's motion from which light is being scattered. Methods based on the Hilbert-Huang transform, a combination of the empirical mode decomposition (EMD) and the Hilbert spectral analysis (HSA), have been proven to identify these moving scattering objects. In this talk, we present the results of using a time-varying filter approach for EMD to identify scattering objects and their velocity during the third observing run in LIGO.

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