Scattering Paper

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Abstract

This is the abstract

INTRODUCTION

The Laser Interferometer Gravitational-wave Observatory (LIGO) consists of two identical 4 kilometers interferometric detectors located in Hanford, Washington (H1) and Livingston, Louisiana (L1). The detectors are Michelson interferometers with Fabry-Perot resonant cavity arms [**need ref here**]. Each detector has a 200 W Nd-YAG laser (**This may be wrong?**) that is sent through the interferometer and test-mass mirrors. These test-mass mirrors are seismically isolated using a multi-stage suspension system. The core optics are located in an ultra-high vacuum system. [**Cite virgo paper here?**]

Recently, LIGO completed the first half of its second observation run (referred to as O2) **Should I give dates here?**. Over the course of this observation period, there were many noise sources that were modeled and characterized. One such noise source, scattering, was intermittent over the course of the analysis period. Scattering is the result of diffused light scattering inside the vacuum system. Diffused light can additionally result from light scattered off of optics located on benches outside the vacuum system, which can introduce noise.

What is scatter

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