

Abstract Submitted
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Real-time Simulation of a Suspended Cavity with the Advanced LIGO Digital Controls System¹ ALEXANDRA ZHDANOVA, University of Washington, LIGO COLLABORATION — LIGO is a collaboration brought together by the goal of detecting gravitational waves sent out by especially massive, quickly-moving objects. An integral part of LIGO’s interferometers are the Fabry-Perot cavities in the arms. Modeling them can show us how well we understand the noise in addition to serving as a test of the control system used to keep the interferometer in resonance. While time-domain simulations of the cavity have been done, a real-time model would provide a better comparison point for the noise while accurately simulating the cavity response. This presentation outlines such a real-time model, as well as a comparison between the results of the “fake” (or simulated) cavity and the “real” cavity. The closer these results are to each other, the more successful we count our model as an accurate representation of the real-life noise and mechanics in a Fabry-Perot cavity.

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