

Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Tracking down the origins of Advanced LIGO noise: 2 examples BEVERLY K. BERGER, LIGO Caltech, LIGO SCIENTIFIC COLLABORATION COLLABORATION — For Advanced LIGO to reach design sensitivity various sources of instrumental and environmental noise must be identified and ameliorated. We discuss 2 efforts to search for the origin of noise bursts (glitches) at LIGO Hanford. Advanced LIGO monitors thousands of channels in addition to the gravitational wave channel. These can be studied to find correlations between the gravitational wave channel and other sensor signals. The first type of glitch had a frequency of 50 Hz and a rate of 1 per minute. It was found that the glitches were correlated with ground motion in the end station of the X-arm where the offending air compressor was tracked down and turned off. The second example manifests itself as a sudden, but brief, drop in the range occurring, typically, several times per day at LIGO Hanford and less frequently at LIGO Livingston. These range-drop glitches appear in the gravitational-wave channel. Although correlations with these glitches can be seen in many channels, it cannot be easily determined whether these channels are responding as an effect of this type of very strong glitch or whether they might be related to their cause or causes. To date, the cause of the range-drop glitches is not known.

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Date submitted: 08 Jan 2016

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