

COLLOQUIUM

An Overview of Commissioning and Calibration Efforts During LIGO's Fourth Observing Run

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Abstract: The Laser Interferometer Gravitational Wave Observatory (LIGO) comprises two L-shaped laser interferometers with four-kilometer-long arms designed to detect gravitational waves. Managed jointly by Caltech and MIT, the two LIGO detectors successfully detected the first gravitational wave signal in 2015. In the time since, the LIGO-Virgo-Kagra (LVK) Collaboration has recorded an additional 89 gravitational wave detections throughout its first three observing runs. Currently in its fourth observing run (O4), LIGO has made several detector upgrades and infrastructural improvements to increase its sensitivity to gravitational wave sources. This talk will discuss the current state of the LIGO detectors and provide an overview of the commissioning and strain reconstruction efforts that paved the way for O4.