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LIGO Detector Characterization in the Second and Third Observing Runs DEREK DAVIS, California Institute of Technology , LIGO SCIENTIFIC COLLABORATION COLLABORATION — The characterization of noise sources and instrumental artifacts of the Advanced LIGO detectors in the second and third observing runs has increased the sensitivity of the instruments, allowing for a higher number of detectable gravitational-wave signals, and provided confirmation of all observed gravitational-wave events. In this talk, I outline how LIGO data differs from the output of an idealized interferometer and how these differences impact searches for and analyses of gravitational-wave signals. I present the methods used to characterize the LIGO detectors and how this information is incorporated into LIGO-Virgo analyses in the second and third observing runs. I detail how inclusion of data quality information has improved analyses of gravitational-waves from both transient and persistent sources.

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