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Advanced LIGO: The next generation of gravitational wave observatories

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First generation gravitational wave(GW) detectors reached their goals for sensitivity, and have been producing interesting scientific results. Yet current detectors have not made a GW detection, but a new generation of GW detectors, currently under construction, will be poised to make this elusive detection. These new instruments should provide a factor of 10 sensitivity improvement, along with an improved detection bandwidth. As a result, the expected detection rate for a GW detector network should increase by a factor of 1000. This should make for very rich and exciting high quality scientific results in the not so distant future. We will present an overview of LIGO detectors, and showcase the current efforts to improve these detectors. Also in this talk we will showcase the new technologies used to achieve this improvements for the Advanced LIGO project. We will also discuss the status of Advanced LIGO and its prospects for its next science data collection.

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