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The Status of Advanced LIGO: Light at the End of the Tunnels!

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After six years of construction and installation, two of the Advanced LIGO gravitational wave detectors are on the cusp of completion. Early results from integrated testing show that these second-generation interferometers are well on their way to unprecedented strain sensitivity. It has been a fantastic journey of single-goal-oriented teamwork, intense organization, and an exciting exercise of cutting edge physics and technology. We present this journey, demonstrating that all major subsystems have met the needed performance independently; we show the promising results from the early integrated testing phases of complete portions of the interferometers; and we finally discuss the schedule for commissioning the fully-operational interferometers to their designed performance. At such performance, we carve out new regions of strain sensitivity with these observatories, and begin to crack open the field of gravitational wave astrophysics.

¹for the LIGO Scientific Collaboration