

SES16-2016-000146

Abstract for an Invited Paper  
for the SES16 Meeting of  
the American Physical Society

**The Advanced LIGO Instrument, Its First Science Run and Gravitational Wave Detections**

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The Advanced LIGO upgrade of the two LIGO detectors in Hanford, WA and Livingston, LA was completed in 2014. All subsystems were redesigned for improved performance at all relevant frequencies, aiming for an overall factor of 10 improvement of sensitivity from initial LIGO. The first science run, from September 2015 to January 2016, has already yielded two gravitational wave signal detections from coalescing binary black holes, creating in turn a wave of excitement around the world.