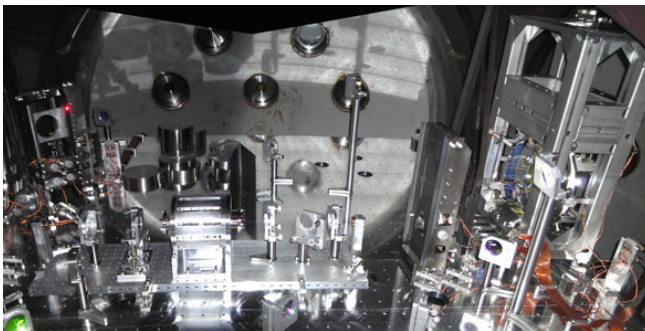




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## Preparations for Gravitational Wave Searches with the Enhanced LIGO Detectors

Dale Ingram  
LIGO Hanford Observatory  
Richland, WA



The Laser Interferometer Gravitational-wave Observatory (LIGO) will begin its sixth science run, S6, in April of 2009. LIGO's pair of 4-km detectors will operate at unprecedented sensitivities during the 20 months of S6 as the result of a program of instrument upgrades that is now nearing completion. These improvements are Advanced LIGO technologies which, when fully implemented in 2014, will render the Advanced LIGO detectors ten times more sensitive than their Initial LIGO predecessors. The S6 run will provide *in situ* tests of next-generation hardware while advancing the search for gravitational waves. This talk will offer an overview of the configuration and operation of the LIGO detectors along with details of improvements in laser systems, input optics, vibration isolation platforms and signal sensing.