

Abstract Submitted
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Report on LIGO Science Run S4¹ FREDERICK RAAB, LIGO Hanford Observatory, LIGO LABORATORY TEAM, LIGO SCIENTIFIC COLLABORATION — Following a year of detector commissioning advances, the Laser Interferometer Gravitational-Wave Observatory (LIGO) conducted a search for gravitational wave sources from Feb 22 to Mar 23, 2005. The run included LIGO's 4-km and 2-km interferometers at Hanford, Washington and the 4-km interferometer at Livingston, Louisiana. The GEO600 interferometer in Hannover, Germany and the Allegro and Auriga resonant bar detectors in Baton Rouge, Louisiana and Padova, Italy also took data overlapping this run. Improvements to wave-front sensing and alignment control of mirrors, implementation of thermal lensing controls and implementation of active vibration isolation allowed operation of the LIGO interferometers with duty cycles exceeding 74% and with strain-equivalent noise of order 10^{-22} Hz^{-1/2}.

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