

# CFA/VISHNO 2016

## Part 1: A presentation of the LIGO gravitational waves detectors

F. Matchard et S. Biscans  
LIGO, 185 Albany Street, Cambridge, 02139, USA  
fabrice@ligo.mit.edu



LE MANS

**CFA2016/589****Part 1: A presentation of the LIGO gravitational waves detectors**

F. Matichard et S. Biscans  
LIGO, 185 Albany Street, Cambridge, 02139, USA  
fabrice@ligo.mit.edu

The LIGO and VIRGO scientific collaborations recently reported the detection of a gravitational wave emitted by the merger of a binary black holes system [1]. This detection has been recorded by the two LIGO detectors that simultaneously measured a differential motion in the orders of  $10^{-18}$  meters across the arms of the two 4 km Michelson interferometers [2]. This talk will give a general presentation of the instrument that permitted the detection of this gravitational wave emission. [1] Abbott, B. P., et al. "Observation of gravitational waves from a binary black hole merger." *Physical Review Letters* 116.6 (2016): 061102. [2] LIGO Scientific Collaboration, and Virgo Collaboration. "GW150914: The Advanced LIGO Detectors in the Era of First Discoveries." arXiv preprint arXiv:1602.03838 (2016).