

APR07-2007-020022

Abstract for an Invited Paper  
for the APR07 Meeting of  
the American Physical Society

**Current State of the LIGO Detectors**

RAINER WEISS, Massachusetts Institute of Technology, on behalf of the LIGO Scientific Collaboration

The basic physics of the detector will be described: how the the interferometer interacts with a gravitational wave and the noise sources that limit the measurements. The actual performance of the detectors, the result of a great deal of hard work and elegant diagnostics by members of the LIGO collaboration, will be presented. The talk will end with some ideas for incremental improvements in the initial detectors. The major improvements in the detectors, associated with the Advanced LIGO detector project, will be described in a presentation by David Reitze at this meeting. The data analysis and results of science runs made with the initial LIGO and GEO detectors are discussed by Gabriela Gonzalez.