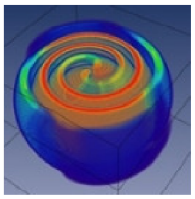
LIGO Hanford Observatory

Ship: 127124 N Rt. 10 Richland, WA 99354
Mail: PO Box 159 Richland, WA 99352 0159
Phone: 509-372-8106 Fax: 509-372-8137
46 27 18.528 N, 119 24 27.5657 W

Home
Welcome
LIGO Overview
LIGO Science
LIGO News
LIGO Tours
Public Events
Star Parties
Teachers' Corner
Field Trips
Driving Directions
Kids' Corner
Hotels/Dining
Event Highlights
LIGO Staff
Visiting Scientists
Science Seminars
Student Research
Hanford E-log
LIGO Livingston
LIGO Laboratory
LIGO MIT
Our Collaborators
Media Kit
NSF

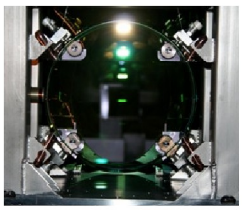
• For the Public • Science Goals • LIGO News • Advanced LIGO • LIGO Laboratory • The LSC • Contact LHO

Welcome!



Welcome to the LIGO HANFORD OBSERVATORY home page. The LIGO acronym stands for Laser Interferometer Gravitational-Wave Observatory, whose mission is to observe gravitational waves of cosmic origin. LIGO searches for gravitational waves created in the supernova collapse of stellar cores to form neutron stars or black holes, the collisions and coalescences of neutron stars or black holes, the wobbly rotation of neutron stars with deformed crusts and the remnants of gravitational radiation created by the birth of the universe. LIGO is operated by the California Institute of Technology (Caltech) and the Massachusetts Institute of Technology (MIT) for the National Science Foundation (NSF).

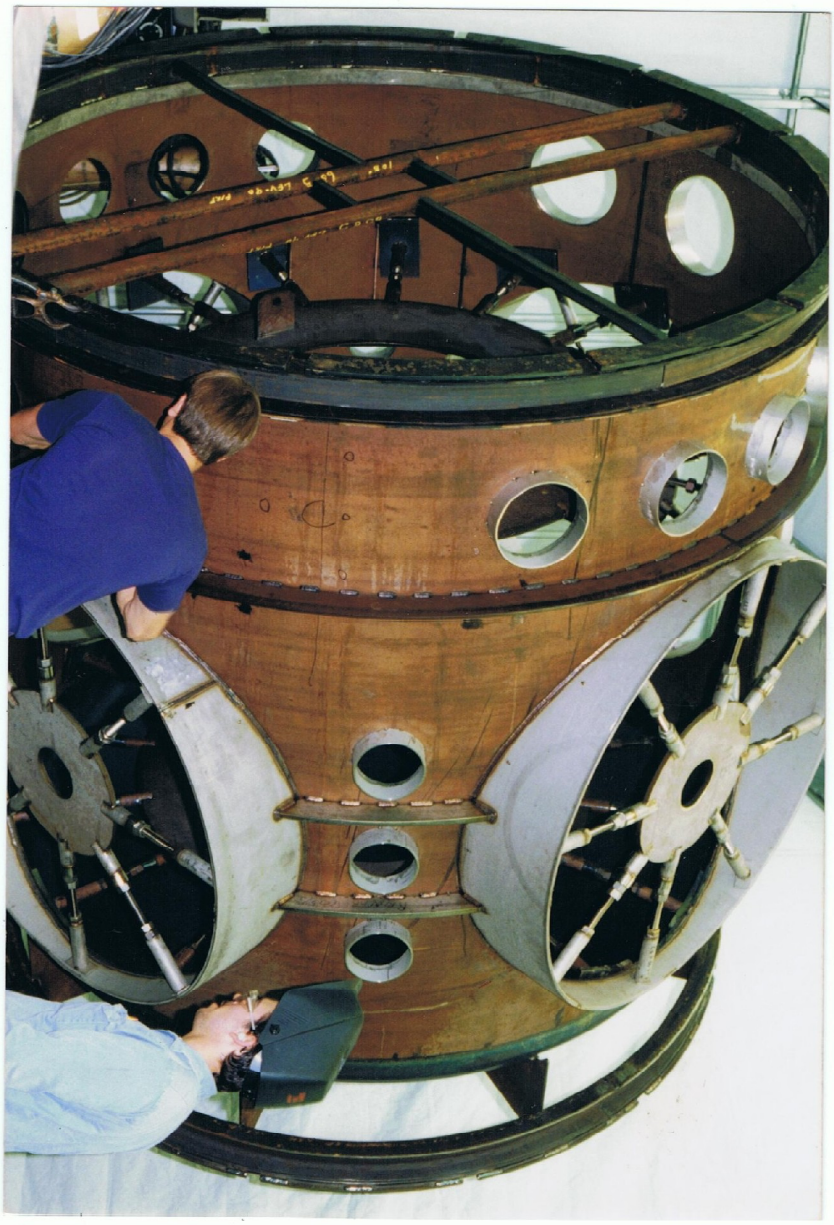
LIGO Observatory facilities in Hanford, WA (see photo above) and Livingston, LA house laser interferometers, consisting of mirrors suspended at each of the corners of a gigantic L-shaped vacuum system, measuring 4 kilometers (2-1/2 miles) on a side. Precision laser beams in the interferometers will sense small motions of the mirrors that are caused by a gravitational wave. Observing runs began in 2002. In 2008, the NSF approved funding Advanced LIGO. The Advanced LIGO program will place upgraded detector subsystems into the existing infrastructures at the sites, generating a ten-fold sensitivity improvement and yielding a thousand-fold increase in the volume of space that LIGO will survey.



Gravitational waves that originated hundreds of millions of lights years from earth are expected to distort the 4-kilometers mirror spacing by about a thousandth of a fermi, less than one tenth of a trillionth of the diameter of a human hair. These waves were first predicted by Einstein's Theory of General Relativity in 1916. At the turn of this new century we believe that the technology to make gravitational wave detections is at hand. Enjoy looking at the LIGO web pages for LIGO Hanford, LIGO Livingston, LIGO Caltech and LIGO MIT, where you can learn more about the basic science that is LIGO's quest, the technology development programs that will make this quest achievable and the people who are striving to open a new window on the universe.

•Last modified Dec 16, 2008
•Gravitational wave image courtesy of UTB/AIP
•For problems or suggestions about Web material, contact webmaster@ligo-wa.caltech.edu
•For information about LIGO, contact info@ligo.caltech.edu

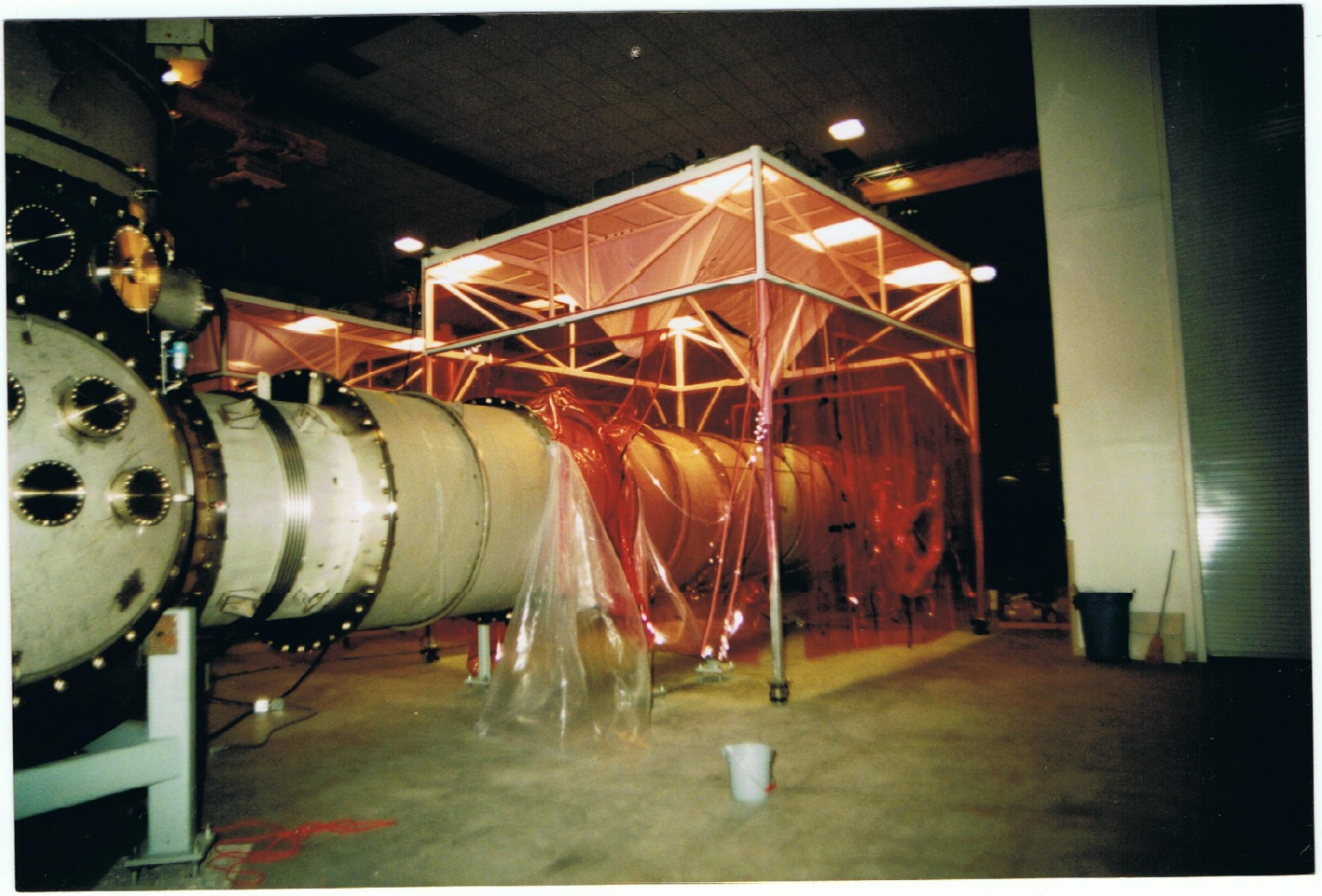
LIGO is supported by the National Science Foundation. Any opinions, findings, conclusions or recommendations expressed here are those of the author(s) and do not necessarily reflect the views of the National Science Foundation



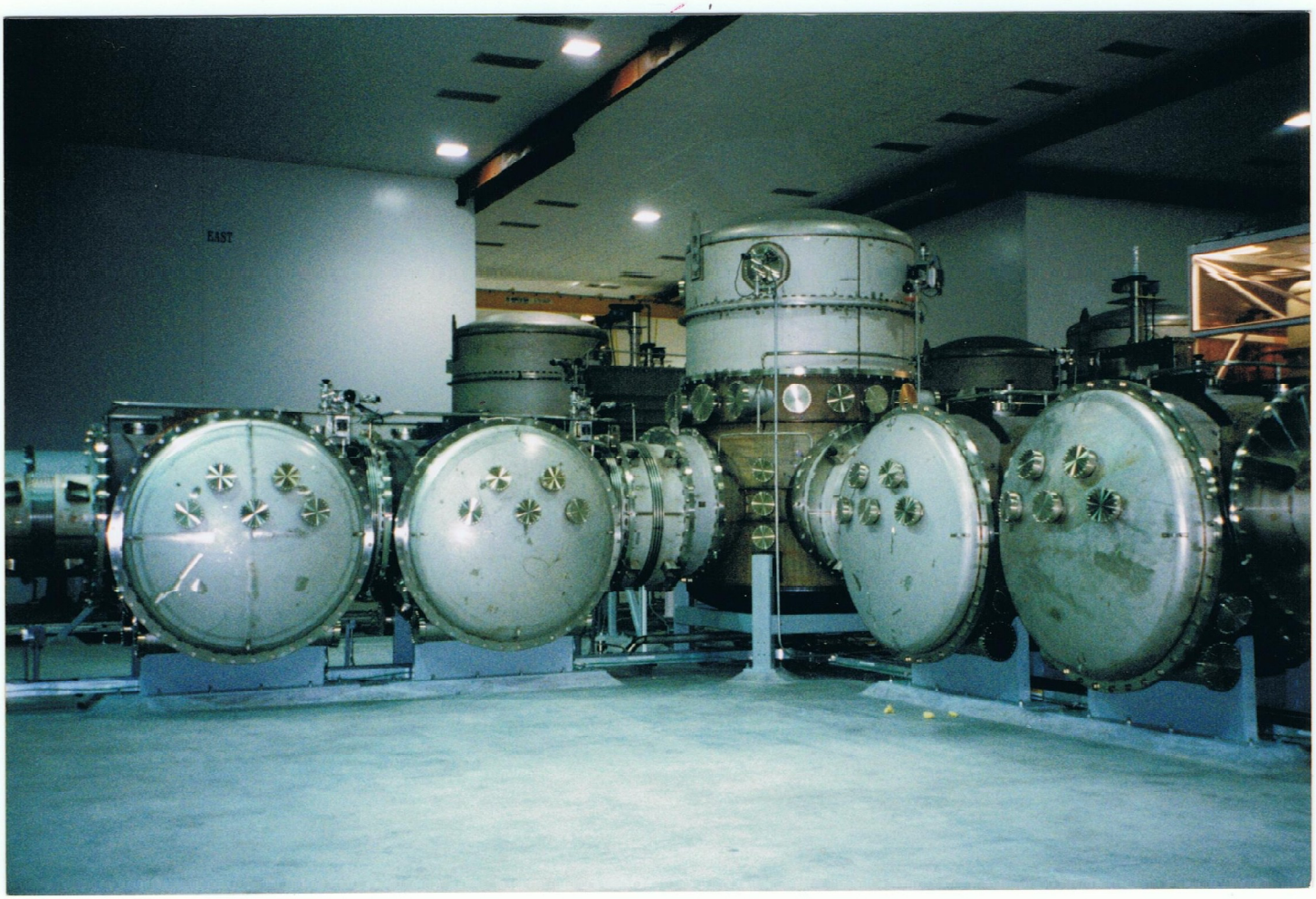
BEAM SPLITTER
CHAMBER
FABRICATION

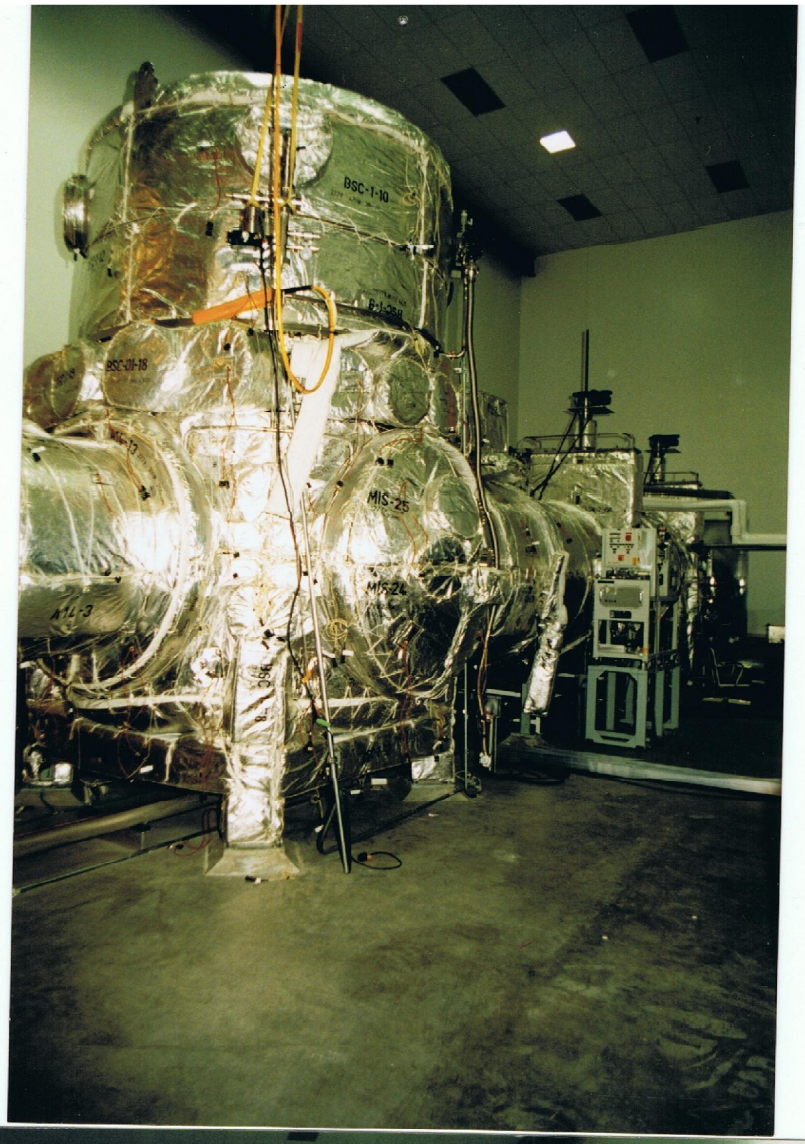
EQUIPMENT ARRIVING AT THE SITE WITH SHIPPING COVERS

PORTABLE CLEANROOMS USED FOR INSTALLATION



SYSTEM INSTALLATION AT SITE





SYSTEM 150' C
BAKEOUT