

# Visit to the LIGO Hanford Observatory

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I visited LIGO Hanford Observatory (Richland, WA) for two months from January 14 to March 14, 2014. LIGO(Laser Interferometer Gravitational-Wave Observatory) is the world's most largest gravitational wave detector project and the Hanford Observatory is one of two observatories in the LIGO project. I'm grateful to Keita Kawabe (host scientist), Kiwamu Izumi, Daniel Sigg, Stefan Ballmer, Sheila Dwyer, Jeff Kissel and many other scientists and technicians working at the site.

The laser interferometer, which is used for detecting gravitational waves, is now being upgraded at the Hanford Observatory. During my stay, we worked on the test of power recycling technique and auxiliary lock experiment for a 4-km long Fabry-Perot cavity using second harmonic wave laser beam. Also, we worked on the assembly of the transmission monitor system for the cavity (see photo below).

It was a great experience for me to be there at the site where a real gravitational wave detector is being built. I learned not only about the detector itself, but also some techniques for working together with many people. The installation of the laser interferometer will start soon for the Japanese gravitational wave detector project KAGRA. Lessons learned during the stay will surely be useful for the KAGRA project.

