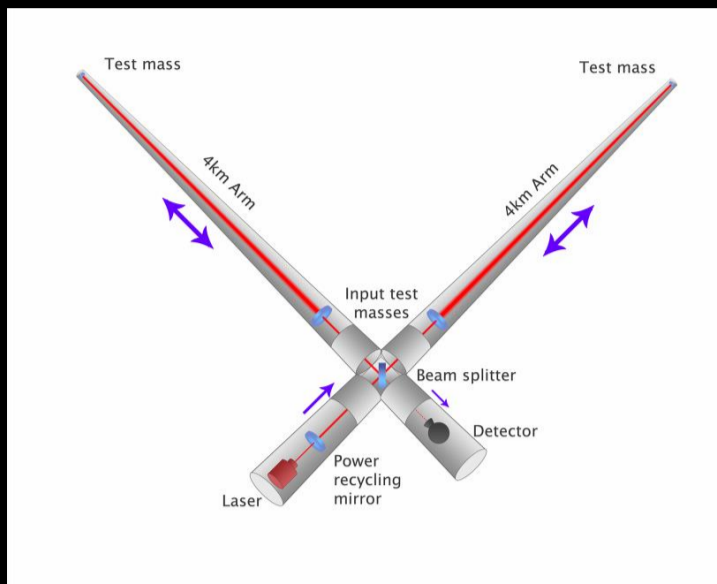


The Laser Interferometer Gravitational-Wave Observatory

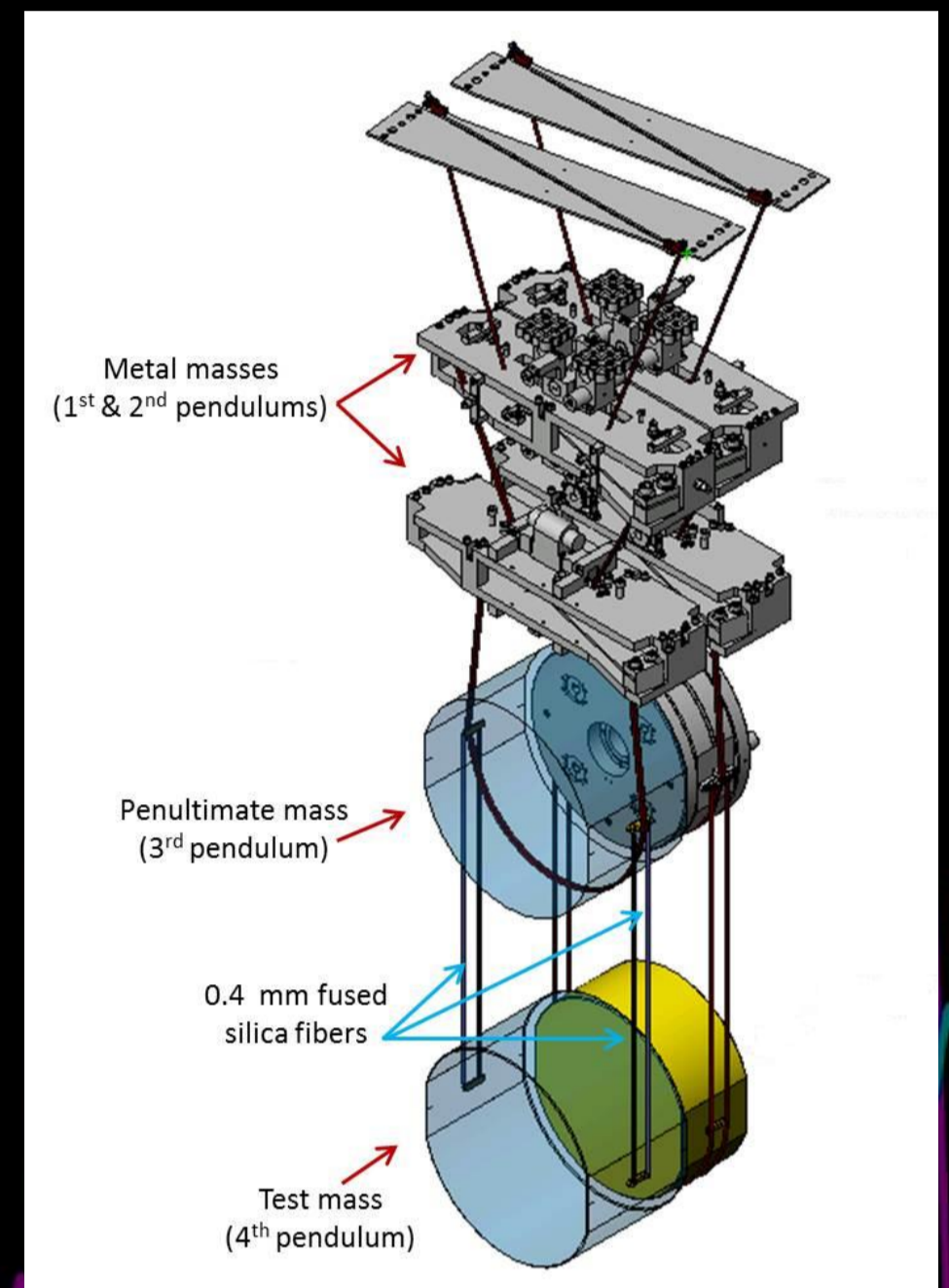
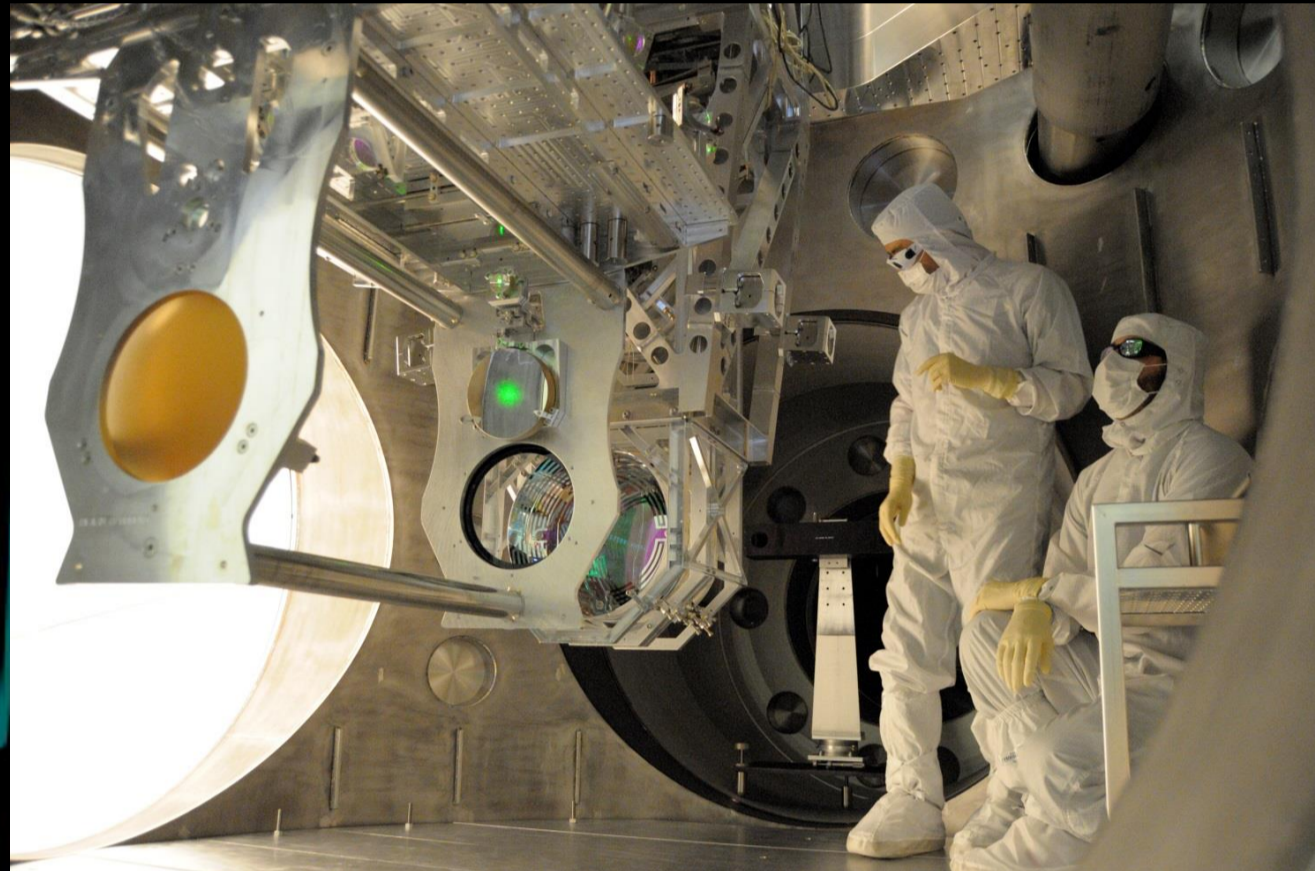
The **LIGO Hanford** and **LIGO Livingston** observatories are the most sensitive scientific instruments ever built – able to detect tiny changes in the length of their 4km arms less than **one million millionth** the width of a human hair.



Schematic of a LIGO interferometer. LIGO/Cardiff Uni./C. North

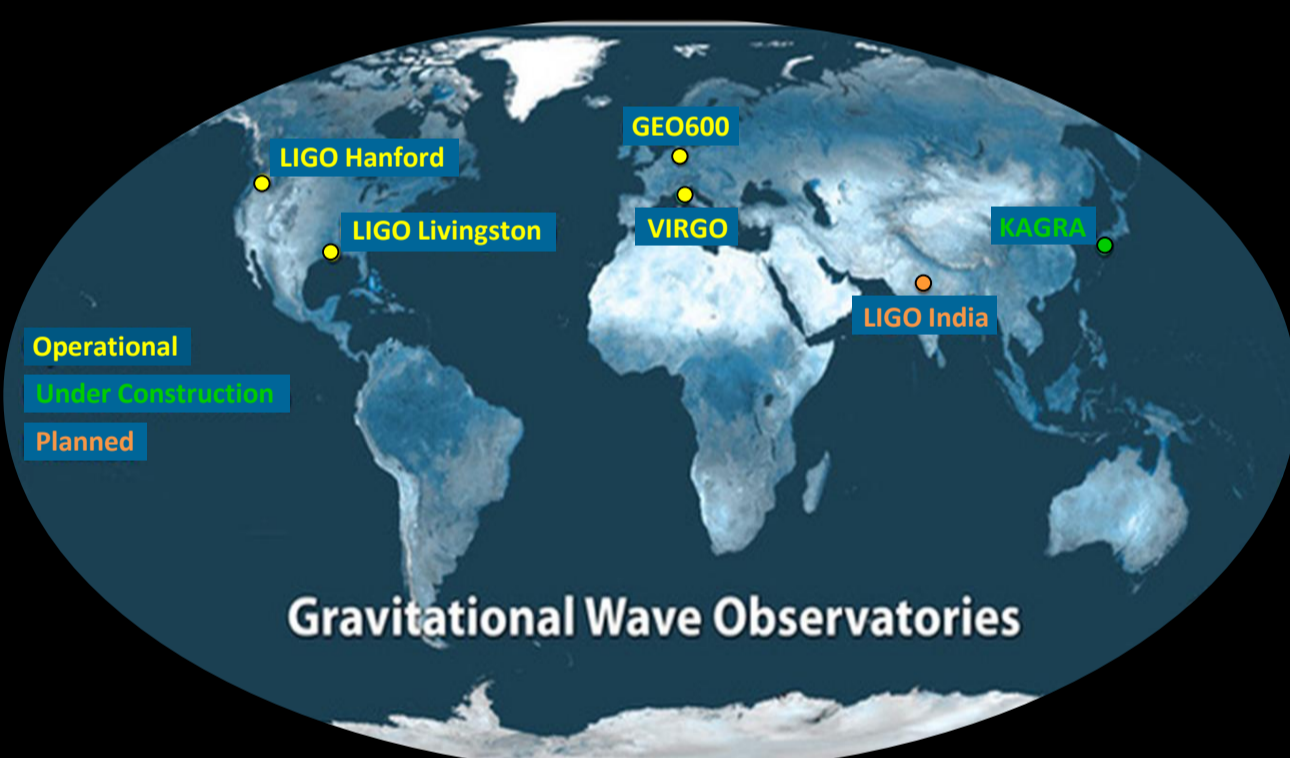
The LIGO detectors are **laser interferometers**. They use the physical properties of light and of space itself to search for **gravitational waves** – the elusive ripples in spacetime predicted 100 years ago by **Albert Einstein**.

Between 2010 and 2015 the LIGO detectors were upgraded to **Advanced LIGO** – with more powerful lasers, better seismic isolation and heavier, multi-stage test masses.



In September 2015 Advanced LIGO made the **first direct detection of gravitational waves**, from the merger of two black holes 1.3 billion light years away.

This amazing discovery has opened up a **completely new window on the universe**.



The Advanced LIGO detectors were the first in a **global network** that was joined by **Advanced Virgo** in August 2017. The network will be further extended over the next decade.

The new field of **gravitational-wave astronomy** has a very bright future!

To find out more about the amazing science and technology of the **Laser Interferometer Gravitational-Wave Observatory**, visit our website at:

www.ligo.org

Follow us on **twitter**: @ligo

