

## 2017 Nobel Prize for Physics for gravitational waves: all you need to know

The collision of two black holes — a tremendously powerful event detected for the first time ever by the Laser Interferometer Gravitational-Wave Observatory, or LIGO — is seen in this still image from a computer simulation released in Washington February 11, 2016. | Photo Credit:

[REUTERS](#)

**The prize** is shared by Rainer Weiss, Barry Barish and Kip Thorne “for decisive contributions to the LIGO detector and discovery of gravitational waves.”

Dr. Weiss — born in Berlin and now a U.S. citizen — receives half the prize. The remaining half is shared equally by two Caltech scientists — Dr. Barish, Professor of Physics and Dr. Thorne, Professor of Theoretical Physics.

They are receiving the prize for the discovery of the [gravitational waves](#) released by violent events in the universe such as the mergers of black holes. The first time this was detected was on September 14, 2015, by the LIGO-VIRGO collaboration. Since then three more detections have been made, the [latest one](#) on September 28, 2017.

The discovery is due to an extremely delicate experiment. Gravitational waves were predicted by Einstein almost 100 years ago. After about 50 years of experimentation the waves were detected for the first time in September 2015.

The discovery and the repeated detection (four times now) has made the possibility of gravitational wave astronomy very real. Gravitational wave astronomy is a way of mapping out some of the most violent processes in the universe such as black hole or neutron star mergers that cannot be detected with light or the conventional methods.

The discovery can pave the way for proving the general theory of relativity, so that we can look deeper and deeper into the universe. It also throws up the possibility of detectors that can look at the beginning of the universe.

The scientists in the collaboration are from five continents, over 1,000 in number.

A study of nearly 300 people living in different parts of India found that nine single-base variants (single-nucleotide polymorphisms or SNPs) account

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