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## GW networks of Advanced Detectors

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In 2015, the two LIGO detectors revealed for the first time a gravitational wave from the coalescence of two black holes. Two years later Virgo joined LIGO in a worldwide network of advanced gravitational wave detectors, and the detection of a gravitational wave from the coalescence of a neutron binary star in 2017 opened the era of multi-messenger astronomy. Today, the LIGO-Virgo Collaboration has already published about 50 events from the coalescence of binary black holes or binary neutron stars. In the meantime, in April 2020, the Japanese KAGRA detector joined the network, potentially increasing the future detection performance of the network by improving the ability to locate sources in the sky.

This talk will introduce the main technologies of advanced detectors in relation to the key noise sources that need to be addressed.

A summary of the network performance during the last observations and future perspectives will also be discussed.

**Presenter:** PIERGIOVANNI, Francesco (Istituto Nazionale di Fisica Nucleare)

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