

KAGRA status

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After the first detection of gravitational waves coming from a binary blackhole merger in 2015, the field of gravitational wave astronomy has started. Nowadays, the second generation gravitational wave detectors LIGO (in the US) and Virgo (in Italy) have improved their sensitivity substantially with respect of the time of the first detection, increasing the detection volume of about one order of magnitude. Such improvement led to the current detection rate of one event per week, on average. In Japan, KAGRA, the first 2.5G detector, has been built and has started a commissioning phase which will lead to a joint observation run with LIGO and Virgo detectors. KAGRA has two unique features: it is located in an underground facility and has cryogenic mirrors. The first feature will allow for a reduction of the seismic and newtonian noises, which are currently limiting the low frequency region of LIGO and Virgo. The second one will help to reduce the impact of the thermal or brownian noise which is a huge limitation in the central and most sensitive frequency region of gravitational wave detectors.

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