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Catching waves

VIRGO INTERFEROMETER, CASCINA, ITALY

Despite Einstein's prediction of gravitational waves, the first direct observation wasn't until 2015, when two colliding black holes were observed by the LIGO

gravitational wave detectors. Since then, experiments like LIGO and Virgo (above) continue to detect these ripples in the fabric of space-time.

This photo reveals the inner workings of Virgo's interferometer, the instrument responsible for taking the measurements that are needed to detect gravitational waves. Virgo has undergone several upgrades, including a more powerful laser source and

upgraded optics. "The upgraded setup is being tuned to achieve maximum sensitivity," says Fiodor Sorrentino, Virgo's commissioning coordinator. "We plan to start the next observing cycle in March 2023, together with the LIGO and KAGRA observatories, with a 50 per cent improvement in sensitivity. A three-fold advance in the detection rate will see it go from one gravitational wave per week to one per day!"