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## Gravitational wave detectors: First astrophysical results and path to next generation

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After several years of construction and commissioning, LIGO, GEO600 and Virgo gravitational waves detectors have reached or exceeded their foreseen sensitivities and are in operation for few years. Even if a first detection remains unlikely with these sensitivities, meaningful results from the astrophysical point of view have been obtained on gamma-ray bursts or pulsars for example. For the current joint scientific run of LSC and Virgo collaborations, the “multi-messenger” approach has reached maturity and, in particular, online searches have been implemented in order to trigger external observations by satellites or telescopes. We hope that this “multi-messenger” strategy will be fruitful when the next generation of detectors will perform their first science runs in 2015. With a sensitivity increased by a factor 10, gravitational wave events should become frequent and will allow a better understanding of the source physics.

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