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Looking towards gravitational wave detection LISA BARSOTTI, MIT, LIGO COLLABORATION — It is an exciting time in gravitational wave research. The first generation ground detectors, which aim to detect gravitational waves in the audio-frequency region, have been successfully operated at their design sensitivity. One integrated year of coincident data from the three LIGO interferometers in United States has been collected between 2005 and 2007, in partial coincidence with the two European detectors, VIRGO and GEO. All the detectors are currently being upgraded, and they will come back on-line in the next few months with a factor 2 better sensitivity. A major upgrade of LIGO and VIRGO, scheduled to happen immediately after their upcoming science runs, will bring on-line second generation detectors 4 years from now. Their sensitivity is designed to be 10 times better than the first generation detectors, resulting in an expected event rate of at least a few per year. Looking farther into the future, space-based detectors such as LISA propose to cover a lower range of frequencies which are inaccessible on Earth, enhancing the opportunity of understanding our Universe trough gravitational waves.

Lisa Barsotti
MIT

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