

Sources, Frequency Bands, and Instruments: An Overview of Existing and Planned Gravitational-Wave Detectors with a Focus on the Einstein Telescope

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This talk provides an overview of existing and planned gravitational-wave detectors.

It begins with a review of the expected sources of gravitational waves and their characteristic frequency bands, including hypothetical sources such as primordial black hole populations.

Then the principles and capabilities of different types of existing and future detectors operating across these frequency bands are discussed.

Particular attention is devoted to the Einstein Telescope, the planned next-generation underground gravitational-wave observatory in Europe. The presentation introduces the three candidate sites for the facility and compares the advantages and disadvantages of the two proposed detector geometries: the triangular configuration and the classical L-shaped configuration.

The final part of the talk focuses on the astrophysical and cosmological sources that are expected to be detectable with the Einstein Telescope.