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The Einstein Telescope project

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The direct detection of gravitational waves (GWs), with breakthrough discoveries of merging black holes and neutron stars over the past years has revolutionized our understanding of the Universe. This success of second-generation laser-interferometric detectors have ushered scientists into the new era of gravitational-wave astronomy. This scientific field is now attracting more and more interest around the world. Building on the success of the ongoing LIGO, Virgo and KAGRA projects, the Einstein Telescope (ET) is an underground infrastructure project to host a third-generation GW observatory in Europe. ET has the great ambition to detect GW sources throughout cosmic history up to the primordial Universe just after the Big Bang, increasing from about 100 per year to several hundred thousand per year the number of detections of black hole and neutron star mergers. ET has been recently included in the ESFRI roadmap, and the ET collaboration has officially been formed in June 2022, bringing together 1300 scientists from almost 100 institutes. This contribution will give an overview of the Einstein Telescope project, both on the scientific and technological aspects.

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