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Forecasting detection and parameter estimation capabilities for the Einstein Telescope

Wednesday, 23 October 2024 09:00 (30 minutes)

The Einstein Telescope (ET) is a European project for a next-generation gravitational-wave detector. ET is expected to explore a broad range of science case studies. The reference design is based on a triangular shape of three nested detectors with 10 km arms, where each arm consists of a 'xylophone' configuration made of one interferometer tuned towards high frequencies and the other, cryogenic, towards low frequencies. Evaluating ET's detection and parameter estimation capabilities is a mandatory step in its planning process.

The talk will overview the science perspectives of ET reference design, considering different shapes (triangle versus 2L), different choices of arm length, and the use of only the high-frequency instrument. A broad class of scientific output is examined, ranging from compact binary coalescences to multi-messenger astronomy and cosmology.

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