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Kilohertz Gravitational Wave Detectors

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Gravitational wave (GW) detections have ushered in a new era for astronomy, significantly expanding the horizons of gravitational physics and high-energy astrophysics. Numerous GW events originating from compact binary systems have been successfully detected, among which stands out the renowned binary neutron star event, GW170817. This milestone event represents the inaugural joint detection of both GWs and electromagnetic waves, sparking a paradigm shift in our comprehension of neutron star physics and the genesis of heavy elements. However, the (post)merger phase of this event remains elusive due to existing limitations in detector sensitivity. Presently, Advanced LIGO and Virgo detectors exhibit their peak sensitivity in the vicinity of a hundred Hz, while the merger signals manifest at several kilohertz. In this presentation, we shall offer a review of recent findings in kilohertz GW detectors and deliberate on the future prospects in this field.

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