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Localization and early warning for BNSs by third generation detector networks

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In multi-messenger era, the scientific output of gravitational waves will be maximized when combined with its electromagnetic counterpart data. The efficiency of electromagnetic follow-up for given gravitational wave trigger largely depends on the localization error and the remain time to merger obtained from gravitational wave. Based on the fisher matrix method, we estimated the localization uncertainty and early warning performance of three third generation gravitational wave detector network for 1.4Msun-1.4Msun BNS mergers at fixed distance of 40Mpc, 200Mpc, 400Mpc, 800Mpc, 1600Mpc, and for 1.4Msun-1.4Msun BNS mergers following the delay time distribution. Especially, the difference of localization and early warning ability between a ET-like detector in Australia and a CE-like detector in Australia is discussed.

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