

Preparing KAGRA for the Era of Multi-Messenger Astronomy

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The LIGO-Virgo-KAGRA collaboration has detected over 300 events so far, but multi-messenger observations have only been realized once, with GW170817. GW190425, which is believed to have originated from a binary neutron star merger, had poor sky localization, and there have also been events, such as GRB211211A and GRB230307A, that were missed because gravitational wave detectors were not operational at the time. In this context, improving sky localization and increasing the duty cycle of multiple detectors through KAGRA's operation and upgrades is becoming increasingly important. This will be essential for capturing the rare binary neutron star merger events and achieving the sky localization precision required for electromagnetic follow-up observations. In this talk, I will present KAGRA's O5 plans, as well as high-frequency upgrade plans for the post-O5 era, which are aimed at enhancing sky localization capabilities and improving the precision in measuring neutron star tidal deformability.