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INTEGRAL search for gamma-ray counterparts of gravitational wave and neutrino events

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Observations of the INTErnational Gamma-Ray Astrophysics Laboratory (INTEGRAL) allow us to put upper limits on the gamma-ray and hard X-ray emission associated with the gravitational wave events, reported by LIGO/Virgo collaboration, as well as with exceptional high energy neutrino events detected by IceCube. Large duty cycle of INTEGRAL, stable background, and quasi-omnidirectional sensitivity of INTEGRAL/SPI-ACS and IBIS prove to be especially valuable in searches for counterparts of multi-messenger transients. We also discuss the potential of INTEGRAL for performing pointed observations of the GW and high-energy neutrino sources. INTEGRAL high-energy imaging instruments, IBIS, SPI, and JEM-X, give an opportunity to search for both prompt and long-lasting electromagnetic counterparts of various transient events over 3 decades in energy, from 5 keV to 8 MeV.

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