

Multi-messenger triggers with the Jiangmen Underground Neutrino Observatory

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A new era of multi-messenger astronomy has arrived with the detection of gravitational waves and high-energy astrophysical neutrinos. The successful coordination of near real-time follow-up campaigns by multi-wavelength and multi-messenger instruments of those events have largely extended our understanding of the most violent phenomena in the Universe. The Jiangmen Underground Neutrino Observatory (JUNO) is a 20-kiloton liquid scintillator neutrino detector under construction, it will be the world's largest of its kind when it turns on in 2021. JUNO will have highly competitive sensitivity to MeV-scale neutrino detection, and will be able to contribute to the nascent field of multimessenger astronomy, especially for the transient events where high radioactivity background can be easily bypassed. We will present a multi-messenger triggering and filtering system that aims to read out physics hits as much and as low-threshold as possible in JUNO, which can provide the widest broadband neutrino bursts realtime monitoring and possibly steady signal searches at the sub-MeV (as low as 20 keV) to sub-GeV energies.

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