

# The KM3NeT real-time analysis framework

*Tuesday, 18 June 2024 17:30 (2 hours)*

KM3NeT is a deep-sea research infrastructure composed of two water-Cherenkov neutrino telescopes under construction in the Mediterranean Sea: ARCA (Italy), designed to identify and study TeV-PeV astrophysical neutrino sources, and ORCA (France), aiming at studying the intrinsic properties of neutrinos in the few-GeV range. Despite their different primary goals, both telescopes can be used to perform neutrino astronomy across an energy spectrum ranging from a few MeV to a few PeV, owing to the complementary energy ranges they are optimised for. Real-time multi-messenger searches are a key aspect of the KM3NeT program. These searches aim at combining information from complementary cosmic messengers, simultaneously measured by different observatories, in order to study transient phenomena. In this respect, the real-time distribution of alerts when potentially interesting events are detected can enhance the discovery potential of transient sources and refine the localization of poorly localized triggers, such as gravitational waves. In this context, the KM3NeT real-time analysis framework is continuously reconstructing all ARCA and ORCA events, performing core-collapse supernova analyses and searching for spatial and temporal coincidences with alerts received from other operating multi-messenger instruments. The definition of a sample of interesting events to send alerts to the external multi-messenger community is still in progress. We present the current status of the KM3NeT real-time analysis framework.

## Poster prize

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KM3NeT

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**Session Classification:** Poster session and reception 1

**Track Classification:** Astrophysical neutrinos