

## **Offline performance studies of Core Collapse Supernova neutrino detection with the KM3NeT neutrino telescopes**

*Sunday 16 June 2019 11:00 (15 minutes)*

The next observation of MeV neutrinos from a Core Collapse Supernova (CCSN) will provide important new probes on the physical mechanism driving these extreme phenomena of the Universe. The KM3NeT neutrino telescopes deployed in the Mediterranean Sea, with the multi-PMT optical module technology and a large instrumented volume, will be able to detect neutrinos from a Galactic CCSN as an overall increase on the PMT counting rate. The detection principle and expected performance will be presented in this contribution. A detailed Monte Carlo simulation has been implemented to study the capability of the KM3NeT detectors to resolve the neutrino light-curve, which can be of major importance. Exploiting the 31 directional PMTs of the KM3NeT Digital Optical Modules (DOMs) and using the correlation between the mean energy of incoming CCSN neutrinos and the number of PMTs observing light in coincidence, a preliminary result on the determination of the former will be shown.

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