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HALO-1kT and other supernova detectors

When the next galactic supernova explodes, we'll need to be ready to get the most of its neutrino signal. HALO-1kT is a 1 kton lead-based supernova detector that will be possibly be built at Laboratori Nazionali del Gran Sasso (LNGS) in Italy. Its sensitivity to Charged-Current electron neutrinos makes it complementary to most of the other supernova detectors, mainly based on water or liquid scintillator. In the present work, we implement multi-dimensional, Monte Carlo based likelihood analyses in order to assess the contribution HALO-1kT can give in reconstructing the detected time-integrated fluxes (fluences) both alone or combined with two major supernova detectors as Super-Kamiokande and the Jiangmen Underground Neutrino Observatory (JUNO).

Mini-abstract

Proposed HALO-1kT is a robust detector that could help constrain the ν_e fluence.

Experiment/Collaboration

HALO-1kT collaboration

Primary author: Dr GALLO ROSSO, Andrea (Laurentian University)

Presenter: Dr GALLO ROSSO, Andrea (Laurentian University)

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