Contribution ID: **28** Type: **Invited Talk**

HALO-1kT - Status and Design

Monday, 24 February 2020 16:40 (30 minutes)

HALO-1kT is a lead-based supernova neutrino detector proposed for the Laboratori Nazionali del Gran Sasso (LNGS). By utilizing lead from the decommissioning of the OPERA detector at LNGS, HALO-1kT will improve of the sensitivity of the Helium and Lead Observatory (HALO), that has been running in SNOLAB in Canada for the past 7 years, by a factor of ~25. The lead-based neutrino detection technology takes advantage of the large neutrino-nuclear cross sections for lead, and Pauli-blocking of the anti-electron-neutrino charged current channel, to offer a robust, low cost and low maintenance electron-neutrino-sensitive detector that complements water Cherenkov and liquid scintillator neutrino detectors. Neutrino detection is through charged and neutral current interactions with the lead nuclei that expel neutrinos that a subsequently detected with high efficiency in Helium-3 proportional counters. The talk will focus on the physics capabilities of the detector; aspects of its design; and its current status.

Primary author: VIRTUE, Clarence (Laurentian University / SNOLAB)

Presenter: VIRTUE, Clarence (Laurentian University / SNOLAB)

Session Classification: Invited Talks