
Contribution ID: **62** Type: **Poster contribution**

# Longitudinally segmented shashlik calorimeters with embedded SiPM readout for the ENUBET Project

*Friday, April 21, 2017 5:00 PM (1 hour)*

The study of CP violation in the leptonic sector require measurements of absolute neutrino cross sections at the GeV scale with a precision of ~1% level which is up to now at the level of 10% due to uncertainties on neutrino flux at the source. The ENUBET project (Enhanced NeUtrino BEams from kaon Tagging, ERC-CoG-2015 grant) is developing an innovative technique to produce intense sources of electron neutrinos together with the instrumentation of a short tunnel (<50 m) with detectors being able to monitor large-angle positrons arising from Ke3 decays and to discriminate them from the background of charged and neutral pions. The discrimination is based on an innovative design for longitudinally sampled shashlik calorimeters with SiPM embedded in the bulk of the detector. This concept has been sucesfully validated by the SCENTT R&D (INFN, Commissione V).We present in this talk the proposed design for the positron tagger and for the photon veto ("t0-layer") which provides both photon identification capabilities and precise timing of the particles in the instrumented decay tunnel. We discuss in particular the results achieved by SCENTT during the testbeam performed at CERN PS-T9 in July and November 2016. We demonstrate that the calorimeters based on the SCENTT ultra-compact modules (UCM) offer longitudinal segmentation at the level of 4 X_0 without introducing sizable dead zones. We present the results in term of energy resolution and linearity of the response in the range of interest for neutrino physics application and discuss the electron-pion separation capabilities.

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**Session Classification:** Archivio Poster

**Track Classification:** Sessione Nuove Tecnologie