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ENUBET - NP06

(T9, weeks 40-41)

V. Mascagna*, T9/T10 Users Meeting – Mar 17, 2022

* ENUBET Collaboration: 62 physicists, 13 institutions

http://enubet.pd.infn.it
Physics goal

ENUBET → Enhanced Neutrino Beams from kaon Tagging

**Instrumented** decay tunnel to monitor rate of leptons:
→ nu flux 0(1%), nu energy (10%) → improved nu cross-section measurements for accelerator based neutrino experiments

**How?** Sampling sci/Fe calorimeter (e/n) + photon veto (e/γ) + shielding (rad) + WLS fibers + SiPM readout

**Final demonstrator**

T9, weeks 40-41

- energy resolution
- γ/n/e discrimination
- pile-up studies (triggerless DAQ)
- extration schemes

**Prototypes**

@T9 2017, 2018, 2021*

* parasite beam
Demonstrator setup for 2022 test beam

7 tons, FE analysis (stability, lifting) → ok

Movable PVC + Tentmesh® (HDPE mesh = High Density Polyethylene) + black tissue for darkening → fireproof
Test beam requirements

Requirements

- Crane (lifting at the begin/end)
- Cherenkov detectors (e/μ/π PID)
- 1 “desy table” (μ tagging scintillators behind the detector)

Beam:

- **Intensity** ~$10^5$/spill
- **neg.** 3 GeV/c (for channel equalization)
- **e-** 1–10 GeV/c (energy resolution),
- **pos.** large 10 GeV beam (higher intensity for pile-up tolerance tests)