SDSMT @ CERN Prototype

for the purpose of eventually building a full scale far detector underground at SURF that can do both beam neutrino physics and astroparticle physics

Xinhua Bai

Luke Corwin

Juergen Reichenbacher

SDSMT @ CERN Prototype

XB:

- Atmospheric muon physics and as calibration tools.
- LAr purity modeling using existing data, extend to LAr detector simulation and verification using 35-ton prototype results.
- On-site construction, calibration, and operation.

LC:

- Reconstruction and simulation to separate neutrinos from anti-neutrinos using
  - Muon capture from ν_μ CC interactions.
  - Charged Current single pion interactions for ν_μ and ν_e.

JR:

- Deployment, simulation and measurement of radioactive sources, especially in the vicinity of the APA and photon detectors in order to study impact of potential radiological backgrounds from detector components.
- Relative timing calibration comparing APA signals with photon detectors.