Cosmogenic Background Rejection at ICARUS **Primary Cosmic Rays**

Motivation

ICARUS is on the surface and exposed to huge cosmic activity

• Primary background for several physics analysis



Mitigation Procedure :

- ~ 3 m concrete overburden (OB)
- 4π coverage of the detector with Cosmic Ray Tagger (CRT)



Summary :

The overburden is very effective in reducing the hadrons while fully eliminating the electromagnetic cosmic ray components

Exploiting the information from three sub detector and benchmarking the method with data is in progress

2231 primary γ (negligible) Signal v_e candidate Electron Beam direction 1 m wires Induction 2 3000 w/o OB w/ OB 1500 0 Primary γ π0

Primary γ

The reconstructed TPC track once we drift it according to the time at CRT, we will see a pointing track matching to a CRT hit.

References : 1. B. Behera, J.Phys.<u>Conf.Ser</u>. 2156 (2021) 012181 2. C. Hilgenberg, SBN-Docdb : 19166v1

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