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Cosmogenic background suppression at the Short Baseline Far Detector (ICARUS) using a concrete overburden[1] ANNA HEGGESTUEN, Colorado State University, ICARUS COLLABORATION — When a cosmic ray particle collides with the upper atmosphere, it creates a shower of particles that transverse down to the Earth's surface. These cosmogenic particles provide a challenging background in neutrino experiments. The ICARUS detector is a Liquid Argon Time Projection Chamber (LArTPC) that is part of a program dedicated to solve the sterile neutrino anomaly. As this detector will operate at shallow depth, it is exposed to a high flux of cosmic rays that could fake a neutrino interaction. The ICARUS detector will employ two techniques to mitigate this cosmogenic exposure: installing a 3-meter-thick concrete overburden to reduce the flux and a Cosmic Ray Tagging (CRT) system that will surround the LArTPC and tag incoming particles. The cosmogenic background suppression provided by the overburden is explored using simulated events with a detailed detector description. In this talk, I will present a study of the effect the concrete overburden has on stopping particles before they reach the ICARUS cryostat.

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