

Search for a Long-Lived $\tilde{\chi}\tilde{\chi}$ Resonance at ICARUS in SBN

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ICARUS is a liquid argon time projection chamber operating as the far detector in the Short-Baseline Neutrino (SBN) program. The detector is located at Fermilab along the Booster Neutrino Beamline and off axis from the NuMI beamline. We present an analysis that utilizes the ICARUS neutrino detector in order to search for dimuon signals from long lived particles produced by kaons from the NuMI beamline. This is accomplished through a model independent analysis with additional model dependent treatments of heavy QCD axion and the Higgs portal scalar models. No significant excess is found and leading limits are set for both the Higgs Portal Scalar and heavy QCD axion models. As one of the first physics results from the ICARUS detector at Fermilab, the search offers a first look at the capabilities of the detector with respect to the beyond the standard model searches.

Working Group

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