

## Search for a Long-Lived $\boxtimes\boxtimes$ Resonance at ICARUS in SBN

The ICARUS detector in the SBN program at Fermilab is sensitive to “long-lived” new physics particles that would be produced in the Neutrinos at the Main Injector (NuMI) beam and decay inside the ICARUS liquid argon time projection chamber (LArTPC). We show results from a new analysis in ICARUS which searched for a long-lived particle produced in kaon decay which decays to two muons. The search is performed with an exposure of  $2.41 \times 10^{20}$  protons on target in the NuMI beam. It is sensitive to new areas of parameter space for the Higgs portal scalar and an axion-like particle model. The sensitivity is also presented in a model-independent way applicable to any new physics model predicting the process  $K \rightarrow \pi + S (\rightarrow \mu\mu)$ , for a long-lived particle  $S$ . This is the first search for new physics performed with the ICARUS detector at Fermilab. It paves the way for the future program of long-lived particle searches at ICARUS.

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