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P3.066 **KPipe: A short-baseline muon-neutrino disappearance experiment using neutrinos from kaon decay-at-rest**

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A number of neutrino experiments have observed anomalous signals consistent with ~1 eV2 neutrino oscillations. One common interpretation of the anomalies postulates the existence of one or more “sterile” neutrinos that, unlike the three Standard Model neutrinos, do not interact via the electroweak force. However, such anomalies have only been seen in experiments measuring nue appearance and nue/nuebar disappearance; no corresponding evidence for muon neutrino disappearance has been observed. If sterile neutrinos explain the anomalies, muon neutrino disappearance must occur, with several models indicating that evidence for the process might have been just below the sensitivities of past experiments. In this poster, I present a proposed experiment, KPipe, that will search for muon neutrino disappearance using kaon decayatrest neutrinos produced by the Materials and Life Science Facility (MLF), located at the JPARC accelerator complex in Tokai, Japan. The MLF features a high intensity, pulsed beam of 3 GeV protons used to produce neutron, muons, and neutrinos for various experiments. The KPipe experiment would detect the isotropic, monoenergetic, 236 MeV neutrinos coming from kaon decayatrest with a 3 m diameter by 90 m long detector starting 32 m from the neutrino source and filled with liquid scintillator. Such a setup significantly reduces the systematic uncertainties coming from the flux, cross section and neutrino energy reconstruction. If sterile neutrino oscillations occur with a mass splitting above 1 eV2, the KPipe detector would observe an L/E oscillation wave in the event rate along the length of the detector. Such a signal combined with the experiment’s minimal systematic uncertainties would provide convincing evidence for (or against) the existence of one or more sterile neutrinos.