

Abstract Submitted
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A Trek to TREK¹ MICHAEL KOHL, Hampton University, TREK COLLABORATION — The Time Reversal Experiment with Kaons (TREK) at J-PARC has been designed to find New Physics beyond the Standard Model through the T-violating transverse polarization P_T of muons in the $K_{\mu 3}^+$ decay of stopped kaons with a sensitivity of 10^{-4} , which is more than 20 times the sensitivity of its predecessor experiment E-246 at KEK-PS. TREK will use a high-intensity kaon beam and the upgraded E-246 apparatus. Two preceding measurements to use part of the new apparatus during the initial low-intensity phase at J-PARC are being proposed, to test lepton universality in the $K_{e2}/K_{\mu 2}$ ratio, and to search for heavy sterile neutrinos. An overview of the planned experiments, results from recent R&D activities, and the current project status will be presented.

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