

Abstract Submitted  
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**Search for Violation of Time Reversal Invariance at J-PARC**

MICHAEL KOHL, Hampton University, TREK COLLABORATION — The Time Reversal Experiment with Kaons (TREK) at J-PARC aims to find New Physics beyond the Standard Model by measuring the T-violating transverse polarization  $P_T$  of muons in the  $K_{\mu 3}^+$  decay of stopped kaons. TREK will use a high-intensity kaon beam and the upgraded apparatus of the E-246 experiment from KEK-PS. The sensitivity for  $P_T$  of  $10^{-4}$  at J-PARC is improved by a factor of 20 compared to the current E-246 limit, well in the allowed range of various models involving New Physics from exotic scalar interactions. An overview of the planned experiment and the status of the detector upgrade will be presented.

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