

Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Search for K^-pp deeply bound state via in-flight ${}^3\text{He}(K^-, n)$ reaction at J-PARC K1.8BR SHINGO KAWASAKI, Department of Physics, Osaka University, Osaka 560-0043, Japan, THE J-PARC E15 COLLABORATION — We acquired the first step data of the experimental search for deeply bound kaonic state at J-PARC beamline K1.8BR (J-PARC E15[1]) in May, 2013. We measure K^-pp bound state by detecting forward scattered neutron from ${}^3\text{He}(K^-, n)$ reaction with the incident kaon momentum of 1 GeV/c. The neutron momentum is measured by TOF counter placed 15 m ahead in the forward direction. The decay charged particles from K^-pp are tracked in the cylindrical detector system (CDS) surrounding the liquid ${}^3\text{He}$ target. The invariant masses ($p\pi$) and (Λp) are reconstructed by the tracking for a search of $K^-pp \rightarrow \Lambda p \rightarrow p\pi^-p$. The in-flight reaction and CDS can distinguish all the background process such as kaon-nucleon absorption. 5.1×10^9 kaons hit on the target in the first E15 physics run data. Some structure below $\bar{K}NN$ or threshold was observed from the missing mass spectrum of ${}^3\text{He}(K^-, n)$. In this presentation, we will present an overview and the preliminary results of the first E15 physics run.

Shingo Kawasaki
Department of Physics, Osaka University, Osaka 560-0043, Japan

Date submitted: 01 Jul 2014

Electronic form version 1.4