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Neutron lifetime experiment with pulsed neutron beam at J-PARC 02 HIDETOSHI OTONO, The University of Tokyo, NOP COLLABORATION — For the measurement of the neutron lifetime, there are two principally different approaches: one is “In-beam” methods, and the other is the ultracold neutron storage methods. Nowadays the latest measurement of the latter methods (878.5 ± 0.7 stat. ± 0.3 syst. sec) differs from the previous former method (886.3 ± 1.2 stat. ± 3.2 syst. sec) by 7.8 sec. Against this problem, we are planning another “In-beam” experiment by detecting decay electrons from neutron beam. The apparatus of our experiment consists of a time projection chamber for the track of decay electron and plastic scintillators with MPPCs for the trigger detector. The difficulty of our experiment is expected as the discrimination between decay electron and ambient background. For this purpose, we use neutron bunched by a spin flip chopper. The bunched neutron beam makes us possible to distinguish signal in chamber and background from outside. In addition, the fiducial position of neutron decay is determined as the function of time. In this talk, we present the performance of our experimental apparatus and the results of a test experiment.

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