

Abstract Submitted  
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**Development of a new scintillation-trigger detector for the MTV experiment using aluminum-metallized film tape** YUKO SAKAMOTO, SACHI OZAKI, SAKI TANAKA, RYOSUKE TANUMA, TATSURU YOSHIDA, JIRO MURATA, Rikkyo University — A new type of trigger-scintillation counter array designed for the MTV experiment at TRIUMF-ISAC has been developed, using aluminum-metallized film tape for wrapping. The MTV experiment aims to perform the finest precision test of time reversal symmetry in nuclear beta decay. In that purpose, we search non-zero T-Violating transverse polarization of electrons emitted from polarized Li-8 nuclei. It uses a cylindrical drift chamber (CDC) as the main electron-tracking detector. The trigger-scintillation counter consists of 12-segmented 1mm thick 300mm long thin plastic scintillation counters. This counter is placed inside the CDC to generate a trigger signal. The required assembling precision of  $\pm 0.5$ mm was a tricky point when we tried to use conventional total reflection mode. Indeed, produce an air-layer surrounding the scintillating bar to keep good light transmission was the main issue. For this reason, we tried to use a new wrapping material made of metallized-aluminum tape, which has a good mirror-like reflecting surface on both sides of the tape. Through this report, we will compare detection efficiency and light attenuation between conventional and new wrapping materials.

Yuko Sakamoto  
Rikkyo University

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