

(※本報告書は英語で記述してください。ただし、産業利用課題として採択されている方は日本語で記述していただいても結構です。)

 MLF Experimental Report	提出日 Date of Report
課題番号 Project No. 2013B0208 実験課題名 Title of experiment Muonium emission from surface treated tungsten 実験責任者名 Name of principal investigator Yasuyuki Nagashima 所属 Affiliation Tokyo University of Science	装置責任者 Name of responsible person Yasuhiro Miyake 装置名 Name of Instrument/(BL No.) MLF, D2 実施日 Date of Experiment 2014/03/15 – 2014/03/18

試料、実験方法、利用の結果得られた主なデータ、考察、結論等を、記述して下さい。(適宜、図表添付のこと)
 Please report your samples, experimental method and results, discussion and conclusions. Please add figures and tables for better explanation.

1. 試料 Name of sample(s) and chemical formula, or compositions including physical form.
Na coated polycrystalline tungsten (size:45 × 35 × 0.05 mm ³ , purity : 99.95%)

2. 実験方法及び結果 (実験がうまくいかなかった場合、その理由を記述してください。)
Experimental method and results. If you failed to conduct experiment as planned, please describe reasons.
<Method> We irradiated the target with positive muon beams with momentum of 27.0 MeV/c ² . The target was under the six different conditions specified with the temperature and the presence of Na coating: 2300K without Na coating, 1500K without Na coating, 1200K without coating, room-temperature without coating, 1200K with Na coating, and 1500K with Na coating. The positrons emitted from muon decay were detected by a detector consisted of plastic-scintillation-arrays and MPPC devices. The difference of two normalized life time spectra obtained from two target conditions, with Na coating and without coating at the same temperatures represents the effect of Na coating to the yield of Mu emission. <Results>

2. 実験方法及び結果(つづき) Experimental method and results (continued)

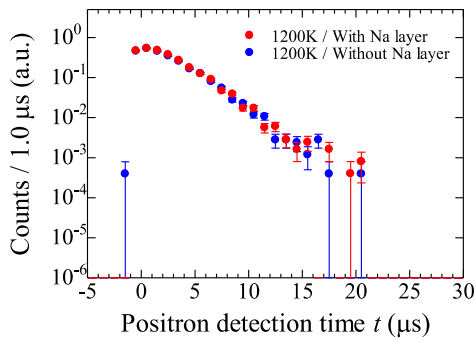


Figure 2: The lifetime spectra obtained for 1200K with Na coating (red plots) and 1200K without coating (blue plots).

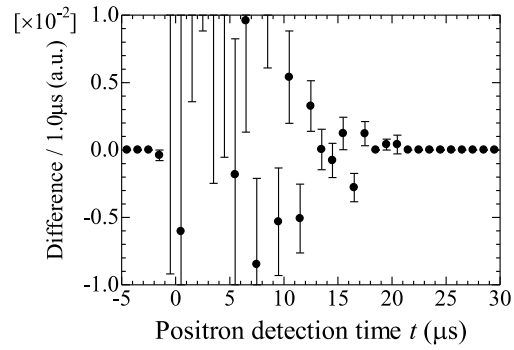


Figure 1: Difference of the two spectra shown in figure 1.

Figure 1 shows the lifetime spectra obtained for the target at 1200K with Na coating and at 1200K without coating. The difference of the two lifetime spectra is shown in figure 2. The plots in figure 2 distribute positive and negative area uniformly and the effect of Na coating on Mu emission yield has not been observed.