 MLF Experimental Report	提出日 Date of Report
課題番号 Project No.2008A0058 実験課題名 Title of experiment Muon Beam Commissioning I of the Decay-Surface Muon Channel 実験責任者名 Name of principal investigator Y. Miyake 所属 Affiliation KEK	装置責任者 Name of responsible person Y. Miyake 装置名 Name of Instrument/(BL No.) D1 &D2 実施日 Date of Experiment Sep.2008-Feb., 2009

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.
Al, Cu, Gold coin etc

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.
<p>For Phase 1, we managed to install one super-conducting decay/surface muon channel with a modest-acceptance (about 40 msr) pion injector. On September 26th, 2008, we finally succeeded in delivering the surface muon beam to the D1 muon experimental area. In front of a live audience, we demonstrated a μSR asymmetry measurement under a weak transverse magnetic field adopting an aluminum plate as a sample, using the 128 x 2 channels DAI-Omega μSR spectrometer. Fig.2 shows the first μSR asymmetry spectrum of the Al sample. Afterwards, together with the audience, we celebrated the extraction of the first muon beam. Fig. 3 shows a picture celebrating the first muon beam production at J-PARC MUSE. By undergoing the beam tuning, we are able to extract, at present, surface muons (μ^+) rate of $8 \times 10^6/s$ and decay muons (μ^+/μ^-) rate of $10^6/s$ at 40 MeV/c and up to $10^7/s$ at 90 MeV/c with a beam size of 50 mm in diameter, which are calibrated intensity with 1 MW proton beam intensity, although the present average intensity is as much as 20 kW. These intensities at 1 MW operation, correspond to more than seven times those at RIKEN/RAL Muon facility.</p>

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

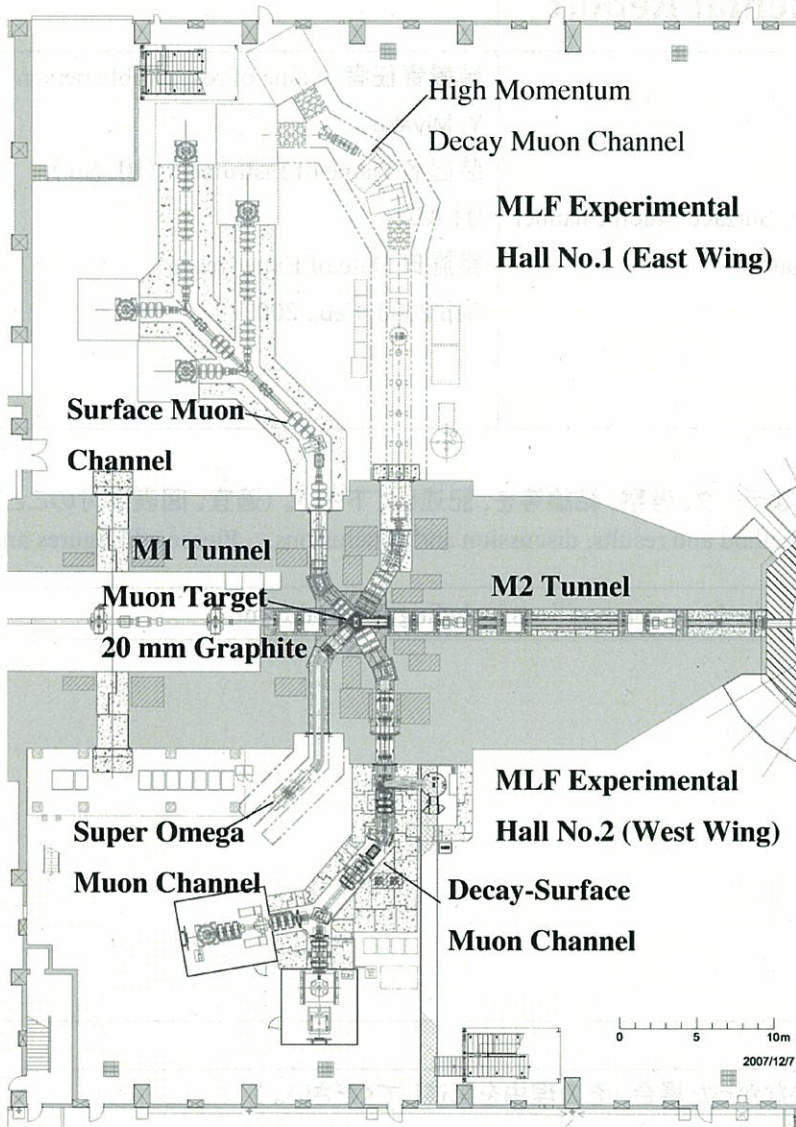


Fig.1 A Schematic drawing of the J-PARC Muon Facility, MUSE

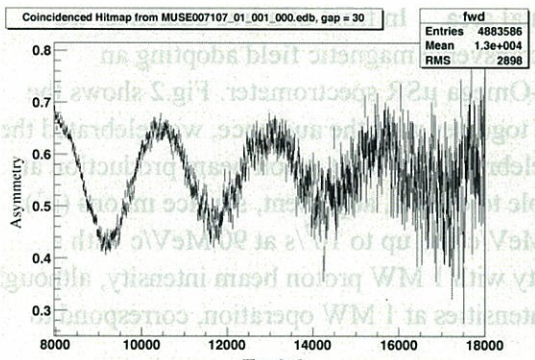


Fig.2 shows the first μ SR asymmetry spectrum of the aluminum target.



Fig. 3 A picture celebrating the first muon beam production at J-PARC MUSE.