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# Tuning of the ultra slow muon beamline by utilizing ionized hydrogen.

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The ultra slow muon beam, which has the kinetic energy range from a few eV to 30 keV and small beam size, is expected to be an innovative probe for surface and interface, and extends the scope of the μSR technique to thin films and small samples. A new muon beamline called "U-line", which designed to supply ultra slow muon beam, is now under construction at the Materials and Life Science Experimental Facility (MLF) in J-PARC. Surface muons are transported to a hot tungsten foil at the middle of the beamline. The muons stopped in the foil evaporated to vacuum as thermal muoniums. Then, the ultra slow muons are generated by the laser resonant ionization of muoniums. Before transporting ultra slow muons through the beamline, we ionized and transported H+ ions as an ultra slow beam and optimized the beam transportation and the beam properties. The latest results of tuning will be reported in the presentation.

## WG3: Accelerator Physics (Yes/No)

No

## WG2: Neutrino Scattering Physics (Yes/No)

No

## WG4: Muon Physics (Yes/No)

Yes

## WG1: Neutrino Oscillation Physics (Yes/No)

No

## Type of presentation

Oral presentation

**Author:** ADACHI, Taihei (KEK)

**Co-authors:** YABUUCHI, Atsushi (KEK); TORIKAI, Eiko (University of Yamanashi); NAKAMURA, Jumpei (KEK); NISHIYAMA, Kusuo (KEK); STRASSER, Patrick (KEK); NAGATOMO, Takashi (International Christian University); MIYAKE, Yasuhiro (KEK); IKEDO, Yutaka (KEK); SHIMOMURA, koichiro (KEK)

**Presenter:** ADACHI, Taihei (KEK)

**Session Classification:** WG4: Muon Physics and High Intensity applications