## Workshop on Muon Physics at the Intensity and Precision Frontiers



Contribution ID: 7

Type: Oral contribution

## Development of a muon linac for the J-PARC Muon g-2/EDM experiment

Saturday, 15 April 2023 14:00 (30 minutes)

At J-PARC, a muon linac is being developed for future muon g - 2/EDM experiments. The muon linac starts with an ultra-slow muon (USM) source that generates muons with an extremely small momentum of 3 keV/c (kinetic energy W=25 meV) by laser ionization of thermal muonium. The generated USM accelerated to 5.6 keV by an electrostatic field and injected into a radio frequency quadrupole (RFQ). The injected muons are accelerated to 0.34 MeV by the 324-MHz RFQ. Then, the energy of the muon beam is boosted to 4.5 MeV with a 324-MHz interdigital H-type drift tube linac (IH-DTL). Following the IH-DTL, 1296-MHz disk-and-washer (DAW) structures accelerate the muon up to 40 MeV. Finally, the muons are accelerated from 40 MeV to 212 MeV using a 2592-MHz disk-loaded traveling wave structure (DLS). In this presentation, details of the linac design and the recent progress toward the realization of the world's first muon linac will be presented.

Primary author: TAKEUCHI, Yusuke (Kyushu University)Presenter: TAKEUCHI, Yusuke (Kyushu University)Session Classification: Muon Physics Topic 3

Track Classification: Muon accelerators and colliders