



Contribution ID: 1314 Contribution code: WECN1

Type: **Contributed Oral Presentation**

Muon production target at J-PARC

Wednesday, 22 May 2024 15:00 (20 minutes)

A pulsed muon beam has been generated by a 3-GeV 333-microA proton beam on a muon target made of graphite at J-PARC, Materials and Life Science Experimental Facility. The first muon beam was successfully generated in 2008, and 300-kW proton beam has been operated by a fixed target till 2014. To extend the lifetime, a muon rotating target, in which the radiation damage is distributed to a wider area, had been developed. The muon rotating target #1 was installed in 2014 and had operated for five years until 2019. The rotating target #2 has stably operated at 830 kW until now in 2023. 1-MW operation was also completed for 32hours in 2020. Simultaneously, in the COMET experiment to explore the muon-electron conversion process, 8 GeV proton beam with an intensity of 3.2 kW in Phase 1 and 56 kW in Phase 2 will irradiate targets in a superconducting solenoid magnet. The MLF 2nd target station is a future project where 3 GeV protons will irradiate a tungsten target to produce high-brightness neutrons and muons. In this presentation, the status and future prospect of the muon target at J-PARC MLF MUSE, the COMET target, and MLF 2nd target station will be introduced.

Footnotes

Funding Agency

Paper preparation format

Word

Region represented

Asia

Primary author: MAKIMURA, Shunsuke (High Energy Accelerator Research Organization)

Co-authors: SHIMOMURA, Koichiro (High Energy Accelerator Research Organization); YOSHIDA, Makoto (High Energy Accelerator Research Organization); ONOI, Masahiro (Metal Technology Co. Ltd.); IIO, Masami (High Energy Accelerator Research Organization); KAMEI, Naoya (High Energy Accelerator Research Organization); SUMI, Naoyuki (High Energy Accelerator Research Organization); KAWAMURA, Naritoshi (High Energy Accelerator Research Organization); MIHARA, Satoshi (High Energy Accelerator Research Organization); MATOBA,

Shiro (High Energy Accelerator Research Organization); FUKAO, Yoshinori (High Energy Accelerator Research Organization); UCHIYAMA, Yusuke (High Energy Accelerator Research Organization); NAGASAWA, Yutaka (Metal Technology Co. Ltd.)

Presenter: MAKIMURA, Shunsuke (High Energy Accelerator Research Organization)

Session Classification: WECN: Accelerator Technology and Sustainability (Contributed)

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T20 Targetry and Dumps