Contribution ID: **1572** Contribution code: **TUPS046** Type: **Poster Presentation**

Study on the time changes of the proton beam passing current from the ion source to the RFQ at J-PARC LINAC

Tuesday 3 June 2025 16:00 (2 hours)

Currently, in the J-PARC linac, beam commissioning between the ion source and RFQ mainly involves adjusting the extraction voltage of the ion source and the two solenoid magnets in the Low Energy Beam Transport line (LEBT) installed between the ion source and the RFQ. These parameters are determined to maximize the measured beam current at the current monitor (SCT) downstream of the RFQ. Previously, the SCT used as a reference had measured the beam current by cutting out a part of the macro bunch. However, to further improve the beam quality, we adjusted LEBT parameters using the newly measured method, which is an integrated whole macro bunch signal. The optimum value obtained by the new method differed from the previous. Therefore, to investigate the cause, we saved all the beam current waveforms of the SCT for reference and compared the ion sources and LEBT parameters of each. As a result, the current of the beam that passed through the RFQ changed over time within the macro bunch for certain ion source and LEBT parameter settings. In this presentation, we will introduce the above study results and discuss the cause of the temporal changes in beam current.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: OKABE, Kota (Japan Proton Accelerator Research Complex (J-PARC))

Co-authors: MORIYA, Katsuhiro (Japan Proton Accelerator Research Complex (J-PARC)); OHKOSHI, Kiyonori (Japan Proton Accelerator Research Complex); OTANI, Masashi (High Energy Accelerator Research Organization); SHIBATA, Takanori (Japan Proton Accelerator Research Complex); MORISHITA, Takatoshi (Japan Atomic Energy Agency); MIYAO, Tomoaki (High Energy Accelerator Research Organization); LIU, Yong (High Energy Accelerator Research Organization)

Presenter: OKABE, Kota (Japan Proton Accelerator Research Complex (J-PARC))

Session Classification: Tuesday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.A08 Linear Accelerators