Contribution ID: **383** Contribution code: **TUPB081** Type: **Poster Presentation**

New 3-MeV RFQ design and fabrication for KOMAC

Tuesday 27 August 2024 16:00 (2 hours)

Since the second half of 2013, Korea Multi-purpose Accelerator Complex (KOMAC) has been supporting user beam service by using a 100-MeV proton linac. As the operation period of the proton accelerator exceeds 10 years and the cumulative operating time surpasses 33,000 hours, we judge that it is an opportune time to establish a long-term plan to prepare for the aging of the accelerator. To replace the currently operating RFQ, which shows degradation in performance (especially the reduced beam transmission), we designed a new RFQ with some modifications. We removed a resonant coupling structure, located in the middle of the old RFQ, for simple design and easy tuning. In addition, we increased the length of RFQ from 3,266 mm to 3,537 mm for better beam transmission efficiency in high current mode. Error study on the new structure showed that the design is robust to the various error sources. The details of the RFQ design along with fabrication status will be given in this presentation.

Footnotes

Funding Agency

This work has been supported through the KOMAC operation fund of KAERI by MSIT (Ministry of Science and ICT of Korean government, KAERI-524320-24).

Primary author: KIM, Han-Sung (Korea Atomic Energy Research Institute)

Co-authors: KIM, Dong-Hwan (Korea Multi-purpose Accelerator Complex); KWON, Hyeok-Jung (Korea Multi-purpose Accelerator Complex); MOON, Seok Ho (Korea Multi-purpose Accelerator Complex); LEE, Seunghyun (Korea Multi-purpose Accelerator Complex)

Presenter: KIM, Han-Sung (Korea Atomic Energy Research Institute)

Session Classification: Tuesday Poster Session

Track Classification: MC3: Proton and Ion Accelerators and Applications: MC3.5 RFQs