

Study on improving Fluence measurement accuracy with real-time monitoring using in-air AC Current Transformer

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In Korea Multi-purpose Accelerator Complex (KOMAC) of Korea Atomic Energy Research Institute (KAERI), a proton LINAC for 20 MeV and 100 MeV is in operation and provides the proton beam for various applications since 2013. To measure the Fluence at the sample location, a collimator and a Faraday cup were placed forward and backward and their charges were measured using digital current Integrators. Once the correlation factor was obtained from the collimator and Faraday cup measurements, we could monitor the collimator in real time and measure the actual fluence being irradiated into the sample. In such a measurement system, the Fluence value has a low accuracy due to the pulse-to-pulse variation of the linear accelerator. Therefore, we developed an ADC system using In-air ACCT to increase Fluence accuracy while monitoring in real-time. This ACCT is a non-destructive particle beam diagnostic method without perturbation of the proton beam. Also, it has the advantage of having a fast response characteristic.

In this presentation, the details of the test result of the ADC system using in-air ACCT will be presented.

Paper submission Plan

Yes

Best Presentation

No

Contribution track

ICABU WG2. Beam Physics, Diagnostics & Novel Techniques

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