

Initial operation of vacuum brazing system for manufacturing small accelerator components built at DIRAMS

Thursday, November 14, 2024 1:00 PM (1h 30m)

The Dongnam Institute of Radiological and Medical Science (DIRAMS) has built and operates the C-band electron LINACs for preclinical study and is currently conducting research focusing on core components of C-band electron LINACs for development and commercialization of radiotherapy machine. A vacuum brazing system was built to develop core vacuum components such as electron guns and waveguides designed by DIRAMS. The vacuum brazing system consists of a high temperature vacuum chamber, a high output heating power supply, a water-cooling system and a temperature control system etc. The working zone with a uniform temperature of the vacuum chamber is 40 cm in height and 30 cm in diameter. The vacuum chamber is heated with molybdenum wires and is designed to heat up to 1000°C considering that the melting point of the silver alloy for welding is about 800°C. The vacuum chamber is equipped with a rotary pump and a turbo pump to create a high vacuum environment of 10^{-7} Torr. The overview of the brazing system and process in the DIRAMS will be presented.

(This work was supported by the Dongnam Institute of Radiological & Medical Sciences (DIRAMS) grant funded by the Korea government (MSIT) (No. 594932024).

Paper submission Plan

Yes

Best Presentation

Yes

Contribution track

ICABU WG4. Applications of Particle Beams

Primary authors: LEE, Manwoo (Dongnam Institute of Radiological & Medical Sciences); KANG, Sangkoo (Dongnam Institute of Radiological & Medical Sciences)

Co-authors: JEONG, Dong Hyeok (Research Center, Dongnam Institute of Radiological and Medical Sciences); LIM, Heuijin (Dongnam Institute of Radiological & Medical Sciences); KIM, Hyun (Research Center, Dongnam Institute of Radiological & Medical Sciences); JANG, Kyoung Won (Dongnam Institute of Radiological & Medical Sciences); PARK, Wunghoa (Dongnam Institute of Radiological & Medical Sciences)

Presenter: KANG, Sangkoo (Dongnam Institute of Radiological & Medical Sciences)

Session Classification: ICABU Poster Session

Track Classification: ICABU: ICABU WG4. Applications of Particle Beams