

Advanced Q/A=1/2 K100 heavy-ion compact cyclotron design for multidisciplinary utilization

Thursday, November 13, 2025 4:35 PM (20 minutes)

We have designed a compact Q/A=1/2 K100 cyclotron for multipurpose applications including the productions of medical isotopes and neutrons at an energy of 25 MeV/u. With use of charge-stripping extraction for H₂⁺, lower energy protons can also be produced. By accelerating Q/A=1/2 ions such as N⁷⁺, 36Ar¹⁸⁺ we can irradiate semiconductor chips for heavy-ion space radiation effects and living tissues for radiobiology study. Both vertical and horizontal beam lines have been designed to form uniform beam in air as well as micro-size beam for precision research. The K100 cyclotron facility needs to accommodate comfortably both high-current proton beam and low-current fully charge-stripped light heavy-ions that can be produced by high-performing superconducting ECR ion source located on the upper floor of the cyclotron. I will present some detailed designs of the cyclotron and its beam lines chiefly in terms of beam optics.

Paper submission Plan

No

Best Presentation

No

Primary author: KIM, Jong-Won (Institute for Basic Science (IBS))

Presenter: KIM, Jong-Won (Institute for Basic Science (IBS))

Track Classification: ICABU: Working group 1: Accelerator systems