

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

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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 H^{2+} , lower energy protons can also be produced. By accelerating $Q/A=1/2$ ions such as N^{7+} , $^{36}Ar^{18+}$ 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

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