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Magnetic field study for air-cored HTS skeleton cyclotron

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Skeleton cyclotron is a compact size air-cored cyclotron with a high temperature superconducting (HTS) coil system. HTS coils' high critical current density and high heat stability allow magnetic field induction without using any iron core. With this advantage, the magnetic field configuration can be adjusted quickly without consideration for the hysteresis from iron. The purpose of skeleton cyclotron is to change the beam type quickly between proton, deuteron and alpha particle for the needs of various RI production. In order to achieve this goal, the coil system has to be designed with superconductors' properties taken into account, such as critical current density under strong external magnetic field etc. In this work, the coil system and magnetic field designed for the skeleton cyclotron will be presented. The capability of accelerating various beam type will also be discussed.

Footnotes

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Asia

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