Contribution ID: **2152** Contribution code: **MOPM098** Type: **Poster Presentation**

The mass production magnetic field measurement of the large aperture quadrupoles in HIAF

Monday 2 June 2025 16:00 (2 hours)

Currently the HIAF Project at IMP has reached the construction phase. The BRing is one of the key systems of HIAF, which is used to capture, accumulate, accelerate and extract the heavy ion beam injected by iLinac. The quadrupole magnets in BRing have large aperture (Φ260&Φ180) , large axial length(the total length of the magnet is reached 1140mm) and high integration field uniformity (±3×10-4). To measurement the magnetic field quality is very critical. The measurement aims to reach a reproducibility of 1.5×10-4 for the field integral, 2 ppm for the harmonic content for the main field and 0.2mm for the position of the magnetic center. A specially developed probe allows the simultaneous measurement of the field axis and quality. This thesis demonstrates that the system as it stands fulfils the high requirements with respect to the magnetic measurement and the magnetic center and thus provides the desired unique versatile equipment. The assessment was performed based on experimental results, direct calibration. The main defects treated are mechanical torsion and vibration of moving parts, electrical noise and power supply ripple.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: YANG, jing (Institute of Modern Physics, Chinese Academy of Sciences)

Co-authors: YAO, Qinggao (Institute of Modern Physics, Chinese Academy of Sciences); HAN, Shaofei (Institute of Modern Physics, Chinese Academy of Sciences); ZHANG, Xiang (Institute of Modern Physics, Chinese Academy of Sciences)

Presenter: YANG, jing (Institute of Modern Physics, Chinese Academy of Sciences)

Session Classification: Monday Poster Session

Track Classification: MC1 :Colliders and Related Accelerators: MC1.A04 Circular Accelerators and Storage Rings