



MT 26
International Conference
on Magnet Technology
Vancouver, Canada | 2019

Contribution ID: 851

Type: **Poster Presentation**

Wed-Af-Po3.20-13 [65]: A rotating coil system based on CMM for high gradient small aperture quadrupoles in HEPS-TF

Wednesday 25 September 2019 14:00 (2 hours)

A new rotating coil measurement system based on the CMM is developed for measuring the High gradient small aperture quadrupole for the HEPS-TF. The system is located on the CMM's marble platform. The CMM and two Newport translate stages are combined to align the rotating coil to the magnet center within an accuracy of 10 μm . The integrated gradient strength, the field quality and the magnetic center of a prototype high gradient small aperture quadrupole magnets are measured. Also the harmonic compensation is done to meet the multipole field requirement. The overview of the measurement system, the measuring process, some validated simulations, and primary results of the two prototype quadrupoles are illustrated in this paper.

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Session Classification: Wed-Af-Po3.20 - CCT Magnets and Field Quality of Accelerator Magnets