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Wed-Af-Po3.20-09 [61]: A flexible search coil set-up for magnetic measurements of accelerator dipole magnets

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Search coils are used for fast and reliable measurements of field integrals as well as integral homogeneities of dipole magnets. A long experience exists at GSI using search coils in series measurements of synchrotron dipoles as well as measurements of dipoles with large deflecting angles.

The biggest advantage of this technique is a direct and fast measurement of the field integral. Current technology, however, always required a dedicated coil for each bending radius and length. A prominent example is High Energy Beam Transfer (HEBT) of the FAIR project with 6 different radii between 4.5m and 167m. In addition to the 6 coils, radius dependent moving and guiding systems are necessary.

To overcome the above mentioned drawbacks we developed a modular search coil system with adjustable radius including the support and movement system. The features of the system and measurement results are presented.

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