Status of the FAIR Accelerator Facility

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Abstract

The accelerators of the facility for Antiproton and Ion Research – FAIR are designed to deliver stable and rare isotope beams covering a huge range of intensities and beam energies. The ion and antiproton beams for the experiments will have highest beam quality for cutting edge physics to be conducted within the four research pillars CBM, NuSTAR, APPA and PANDA. The challenges of the accelerator facility to be established are related to the systems comprising magnets, cryo technology, rf-technology, vacuum etc. FAIR will employ heavy ion synchrotrons for highest intensities, antiproton and rare isotope production stations, high resolution separators and several storage rings where beam cooling can be applied. Intense work on test infrastructure for the huge number of superconducting magnets of the FAIR machines is ongoing at GSI and several partner labs. In addition, the GSI accelerator facility is being prepared to serve as injector for the FAIR accelerators. As the construction of the FAIR facility and procurement has started, an overview of the designs, procurements status and infrastructure preparation will be provided.

Figure 3: Example of a quadrupole unit and the mount of two units on a common girder as a quadrupole doublet.