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Status of superconducting magnets for super-FRS at FAIR

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Super Fragment Separator (Super-FRS) is the highest priority accelerator facility in construction of the FAIR at GSI, Darmstadt Germany. Super-FRS will provide desired exotic isotope beams to various experiment sites for fundamental researches. The high energy branch of Super-FRS will be the earliest to be built and will enable to execute the first experiment of FAIR.

Key elements of the Super-FRS that large aperture superconducting dipole magnets and multiplets, which contain quadrupole magnets and corrector magnets, determine performance of the beam separator, are being manufactured and tested intensively.

In Spain, super-ferric dipole magnets with combination of a warm iron yoke and a superconducting coil cryostat are manufactured, while bath-cooled multiplet cold masses in a large cryostat are produced in Italy.

These magnets are transported to a dedicated test facility at CERN, Switzerland, for a qualification of the performance. The testing are executed by a GSI team in collaboration with CERN. The test results are fully assessed by GSI experts including beam optical evaluations and an acceptance decision is made.

Accepted magnets are delivered to GSI and inspected at room temperature, and equipped with interface items to the accelerator infrastructure (pre-assembly) and stored for the installation into the FAIR building.

We will report status of the Super-FRS sc magnet production, testing, as well as pre-assembly, highlight some findings and the measures.

Funding Agency

Footnotes

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