

## **Start of construction for the international Facility for Antiprotons and Ion Research (FAIR) – aspects of survey and alignment**

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After years of intensive planning, the construction work for the new accelerator facility FAIR, located next to the existing GSI in Darmstadt / Germany, has finally started. As first action in December 2011, the forest clearance was done, the construction area was prepared and dedicated construction roads were built. The accompanying activities for establishing a spacious 3D surface point network for building survey, monitoring and later for linking the different machine positions to each other, are still ongoing.

Less eye-catching for the public was the contracting of the series production of 113 superconducting dipoles for the synchrotron SIS100. Prior exhaustive tests on prototypes included investigations on deformation of the cryostat by photogrammetric means as well as on deformation and movement of the cold mass vs. its cryostat under different conditions, performed by conventional geodetic instruments. Measurement procedure and results are shown here.

Besides other comprehensive measures - such as e.g. the structural monitoring of the existing GSI buildings and machines - or the metrological support of transport and installation test procedures of a 95 t dipole magnet, contributions to the mechanical design of accelerator components, coordinate systems as well as equipment but also budget and staff planning et al need to be mentioned, too.

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