

# Layout, Goals and Construction Status of the International Accelerator Facility FAIR

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After its completion, the Facility for Antiproton and Ion Research, FAIR GmbH, is expected to be the leading nuclear physics laboratory in Europe. The central research instrument of FAIR is a new accelerator complex, which is presently being constructed east of GSI-Helmholtzzentrum für Schwerionenforschung GmbH in Darmstadt. The FAIR accelerators are served by the existing accelerators of GSI, which are, in parallel to the construction of FAIR, upgraded for operation as injectors and boosters. Four scientific pillars are the foundation of the physics programme at FAIR: a) the NUClear STructure and Reactions programme (NUSTAR), b) the Atomic, Plasma Physics and Applications (APPA) programme, c) the Compressed Baryonic Matter programme (CBM) and d) the hadron structure and dynamics programme (PANDA). The civil construction of the buildings and tunnels for the so-called modularised start version (MSV) is progressing fast. The construction of the underground SIS100 synchrotron tunnel is completed and the construction of the on-ground buildings in the construction area South is well advanced. The accelerator facility comprises a large number of machines, structured in different sub-projects. With SIS100, Super-FRS, p-linac and pbar separator, CR, HESR and the HEBT system, seven different accelerator systems are under construction in parallel. Meanwhile, a large amount of the accelerator components have been built and accepted and are stored in dedicated storage areas. A major fraction of these components are delivered as in-kind contributions by the FAIR shareholders. The present reference project schedule is targeted towards a completion of the overall facility in 2026.

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