

International Research Center For More Than 3,000 Scientists under Construction

One of the largest construction projects in the world for scientific purposes will be built in Darmstadt, Germany, by 2025. It is named FAIR (Facility for Antiproton and Ion Research). Over 3,000 researchers from more than 50 countries will use the accelerator facility for research about the universe. Drees & Sommer is providing project management and Lean Construction Management (LCM) services to FAIR GmbH, an international countries-and-researchers community established specifically for this purpose.

‘The particle accelerator facility, the only one of its kind in the world, will provide new insights into the evolution of the universe. In addition to the research, it is important for us that we transfer possible applications derived from it into society and the business sphere,’ says Paolo Giubellino, scientific director of FAIR and GSI Helmholtzzentrum für Schwerionenforschung GmbH. The new facility enables several physics research programs to be run in parallel. It provides the framework for scientists to discover missing information on the evolution of the universe, from the Big Bang to the present day. This is made possible by the alliance of a multi-national consortium of 10 member states to form FAIR GmbH. The Federal Republic of Germany and the Federal State of Hesse are the principal investors in the research facility. About one third of the total construction costs of approximately one billion euros is contributed by the partner countries Finland, France, India, Poland, Romania, Russia, Slovenia and Sweden, as well as the United Kingdom as associated partner.

600,000 Cubic Meters of Concrete and 65,000 Tons of Steel

‘FAIR is an ambitious building project with numerous trades and parties involved. As a result, the close coordination of structural and civil engineering, technical building installations and science is particularly important. We benefit from the experience that we have already gathered in many research projects, such as RWTH Aachen University,’ explains Dietmar Zwipp, Associate Partner at Drees & Sommer SE. Drees & Sommer, already a stable factor within the project for the past ten years, provides support for the construction of the accelerator complex as project manager. Together with FAIR Site & Buildings, it also acts as developer.

The team includes project management and Lean Construction Management experts. Based on the *lean* approach, Drees & Sommer applies knowledge and experience from the automotive industry to construction projects and building sites.

The construction of the research center is adapted to the complex technological requirements and is subdivided into several modules. The buildings will be constructed according to the design of the ion42 consortium (DGI Bauwerk and schneider+schumacher). A start was made in July 2017 with the excavation and removal of two million cubic meters of earth, with the carcass work beginning in April of this year. 600,000 cubic meters of concrete and 65,000 tons of steel will be used. The facility is scheduled to be fully operational by 2025.

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Closing Gaps in the Interrelationships between Matter and the Universe

The Darmstadt, the City of Science, fulfills the conditions necessary for the construction of the facility, with an existing laboratory (GSI) and researchers on hand. The GSI site provides 20 hectares of land, which is sufficient space for the complex technical infrastructure required by FAIR. This includes 24 buildings and a ring accelerator with a circumference of 1.1 kilometers, up to 17 meters under the ground – the heart of the facility. Researchers intend to use it to bring electrically charged particles (anti-protons and ions) close to the speed of light and observe their impact on samples of material. This is expected to close gaps in our knowledge of the interrelationships between matter and the universe. Further objectives include the discovery of chemical elements, the search for cancer therapy applications and materials research.



Caption: more than 3,000 scientists will conduct research on the evolution of the universe at the accelerator facility in Darmstadt, Germany. © GSI, FAIR & ion42

Media Release

March 19, 2018

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Economy, quality and ecology are the basic values of Dress & Sommer's services. The Group calls this holistic and sustainable approach 'the blue way'.

Drees & Sommer and EPEA Internationale Umweltforschung (Environmental Research) in Hamburg, Germany, are jointly committed to the Cradle to Cradle® principle in the building industry, bringing principals, investors, architects and manufacturers together to promote the approach.

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