

**INFRASTRUCTURE****SULCIS: FROM THE MINE A RESOURCE FOR DARK MATTER AND APPLIED RESEARCH**

A Memorandum of Understanding was signed in June between INFN and the Autonomous Region of Sardinia for the forthcoming development of the Aria project, aimed at creating an innovative research infrastructure, a technological facility of the highest level, in the Sulcis coalfield in Sardinia. The objective of the project is the separation of air into its fundamental components, useful in various areas of research and application. The separation of argon-40, in particular, will enable the development of an innovative technique for the search for dark matter, designed and implemented for the DarkSide experiment, in the Gran Sasso National Laboratories, by an international team led by the INFN and consisting of 30 institutions from 9 countries worldwide. The overall objectives of Aria, however, go beyond its original research objectives. The project will in fact allow production of components such as oxygen-18 and carbon-13 that have an international market of great importance. The increased accessibility to these elements will help increase the availability of advanced medical screening technologies, including diagnostic techniques for the fight against cancer.

The project, unprecedented at the international level, has been made possible by the cooperation between INFN, with the role of leadership and coordination of the research groups, and Princeton University, in addition to the fundamental contribution of Italian companies. The first design phase has already started, thanks to the funding provided by the US National Science Foundation (US-NSF). In the same month of June, on the 22nd, the DarkSide experiment, from which the Aria project originates, was inaugurated at the Gran Sasso National Laboratories. The event was held in the presence of the US Ambassador to Italy, John Phillips, as well as representatives of the US-NSF which, together with INFN and the US Department of Energy (DOE), is funding DarkSide, and Kinder Morgan, the American company that currently supplies the argon for the experiment. ■