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## **EUROPEAN PROJECTS**

## CHETEC-INFRA: A NEW NETWORK TO SUPPORT NUCLEAR ASTROPHYSICS

In Europe, researchers studying the mechanisms for the synthesis of chemical elements in stellar combustion or in extreme cosmic events

will be able to make use of a new resource: the ChETEC-INFRA (Chemical Elements as Tracers of the Evolution of the Cosmos-Infrastructure) project, which seeks to facilitate the sharing of results obtained and methodologies used in this field of investigation. ChETEC-INFRA will constitute a network between the three different types of infrastructures on which research in this sector is based: astro-nuclear laboratories, which provide data on impact cross-sections of nuclear reactions; supercomputers, which perform calculations of stellar structure and nucleosynthesis; and telescopes and mass spectrometers, which collect data on the quantity of elements and isotopes. The data will be stored and catalogued for their long-term, open-access use within ChETEC-INFRA. Financed within the context of Horizon2020 with 5 million Euro for four years, the network unites 32 institutions in 18 European countries. The bodies involved include many Italian universities and INFN, which will contribute to the initiative with its own expertise in the creation of targets and detectors. In particular, it will be responsible for developing new materials to be used as targets for accelerated beams of particles for studying nuclear reactions at very low energy. In addition, it will be in charge of designing innovative neutron detectors, such as composite scintillators and new plastic materials, in collaboration with industrial partners, and will coordinate the activities for validating the impact cross-sections of the reactions studied, creating and maintaining an open-access database. Finally, it will support the dissemination of results and the training of future generations of researchers, through schools and masterclasses.