

Press release

## Exploring the origin of the elements

**IFIN-HH** participates in EU network for research infrastructures in nuclear astrophysics ChETEC-INFRA (Chemical Elements as Tracers of the Evolution of the Cosmos - Infrastructure), a HORIZON 2020 project grouping institutions from across Europe. Nuclear astrophysics is the science of how the elements of the periodic table have been created, how they are still created now and why the stars shine. This research field is served by a diverse set of research infrastructures of different sizes – from telescopes obtaining stellar spectra, to laboratories studying element production in nuclear reactions, to supercomputers needed to model these processes. To facilitate access to these specialized research facilities, the research infrastructure network ChETEC-INFRA has now been established, in which IFIN-HH with its DFN and DFNA departments is involved. The European Union is funding the network with five million euros from May 1, 2021 until April 30, 2025. It resulted from the collaborations under COST Action CA16117 ChETEC (2016-2021). Romania was represented in this COST action by researchers from IFIN-HH that also became part of the initiative.

ChETEC-INFRA is a network between three types of research infrastructures and serves three physics branches that were separated so far: nuclear physics for astrophysics, astrophysical observations and computer modeling for stars and stellar processes. ChETEC-INFRA involves 32 institutions from 18 European nations and is networked with nuclear astrophysics communities in the United States, China, and Japan.

ChETEC-INFRA will allow, in particular, access to nuclear astrophysics research infrastructures that will be unified using a new integrated web portal; joint PAC, facilities for targets and detectors for nuclear reactions, software tools for open-source nucleosynthesis and new three-dimensional models for the analysis of stellar spectra. ChETEC-INFRA will coordinate actions to inspire the next generation, with masterclasses for high school students, to science schools for PhD students and young post-docs.

Within ChETEC-INFRA, the data will be archived and cataloged for long-term sustainability beyond the end of the project and for their usability in open access.

The coordinator of the network is Helmholtz Zentrum Dresden Rossendorf, with dr. Daniel Bemmerer as spokesperson. The researchers from IFIN-HH are coordinated by dr. Livius Trache, dr. Mihai Straticiuc and dr. Nicoleta Florea.,