



## RESEARCH

### LHC PREPARES FOR PHYSICS: FIRST COLLISIONS AT 13 TeV

For the first time, at CERN in Geneva, in the LHC, the largest accelerator in the world, collisions at 13 trillion electron volts, 13 TeV, an energy never before achieved in the laboratory, have been produced. The new collisions represent a fundamental step towards the new phase of activity of the machine, the so-called RUN2 of LHC, now very close at hand. According to the scientists who work on the LHC and on its experiments, among which about 1400 are Italian, half coordinated by INFN, these collisions have the purpose of preparing the machine: for example, they allow the stability of the beams, which are more focused than in the past, and the protection systems of the probes themselves to be verified. "The first tests with 6.5 TeV beams have gone very well", said enthusiastically Anna Di Ciaccio, national coordinator of ATLAS, one of the four major LHC experiments. In a matter of days, when stable data collection will begin with the 6.5 TeV beams, a new and certainly fascinating chapter will open in the history of particle physics", pointed out Di Ciaccio. ■



## LABORATORIES

### AT LNL A NEW CYCLOTRON FOR NUCLEAR MEDICINE AND PHYSICS

Installation of the new particle accelerator, a P70 cyclotron, in the INFN national Laboratories in Legnaro has just been completed. The exotic nuclei that will be produced by the accelerator will be used to create radiopharmaceuticals for use in medicine and, at the same time, their study will allow us to investigate the processes that lead to the formation of heavy nuclei, such as those that are synthesized in the explosion of supernovae, thus expanding the knowledge of our universe. "The cyclotron at the Laboratories in Legnaro – explains Giovanni Fiorentini, Laboratory Director - is a machine in which every second ten million billion protons are accelerated up to seventy million volts, and constitutes the first part of SPES, a project that will be used to treat people and study the universe", concludes Fiorentini. The accelerator was built by the Canadian company BEST, in close collaboration with INFN, and the same company has also expressed interest in the marketing radioisotopes produced at the Laboratories in Legnaro. The new machine, in fact, will allow radioisotopes, such as Strontium 82, of exceptional interest for nuclear medicine and available only in a few centres worldwide, to be produced in quantity. This production will also open the way to research on innovative radiopharmaceuticals, in collaboration with the most important national and international centres. ■