



## RESEARCH

### PARTICLE PHYSICS: INFN AT WORK TO CONTRIBUTE TO THE NEW EUROPEAN STRATEGY

On 6 and 7 September, the event *Particle physics, towards the new European strategy* took place in Rome. It was structured in two days of work that involved the INFN scientific community, called to collaborate in the development of the new European roadmap of fundamental physics research. As well as NuPECC (Nuclear Physics European Collaboration Committee) for nuclear physics and ApPEC (Astroparticle Physics European Consortium) for astroparticle physics, which presented their respective roadmaps for the future of these two research fields in 2017, now the CERN Council has also started the procedure for updating the European particle physics strategy, and has therefore invited the communities involved in this research to propose ideas and contributions by December 2018. During the two-day event organised by INFN, the possible prospects in the medium and long term were outlined and analysed. In particular, the future of accelerators was discussed, starting from the HiLumi LHC project under construction, considering HighEnergy LHC, up to the possible future types of accelerators based on electrons, hadrons, muons and plasma acceleration. Hadronic physics, electron-hadron physics, physics of flavours and future experiments at the limits of precision and intensity were discussed. Aspects related to the technologies necessary for future frontier research, such as supercomputing, and to future detectors were analysed. Furthermore, there were discussions on neutrino physics, astroparticle physics and cosmology, direct search for dark matter and dark energy and synergies with gravitational wave research, looking in particular at the Einstein Telescope project for the construction of a third-generation interferometer, which Italy is a candidate to host. The next step in this process will be the presentation in December of the documents, including INFN ones, that will open the European discussion, which will lead to the definition of the new strategy by May 2020. ■