



## INTERNATIONAL COLLABORATIONS

### FERMILAB: GROUND BREAKING CEREMONY FOR PIP-II

On 15 March, at Fermilab in the United States, the ground breaking ceremony was held for one of the most important projects for the future of physics, in which Italy provides a fundamental technological and scientific contribution. We are talking about the PIP-II (Proton Improvement Plan II) project for the construction of a new, 215 metre long superconducting linear accelerator: one of the most advanced machines for fundamental physics research that will provide the most powerful high-energy neutrino beam in the world for the DUNE (Deep Underground Neutrino Experiment) project. The ceremony was attended by representatives of American and international institutions. PIP-II uses a superconducting acceleration technology to which INFN is making a fundamental contribution through the Accelerator and Applied Superconductivity Laboratory (LASA) in Milan that will construct the niobium resonant cavities. These high-tech components, made with the contribution of Italian industry, are also used by the European XFEL in Germany and by the European Spallation Source (ESS) in Sweden, and will be installed at CERN in the evolution of LHC, which will be called HiLumi LHC.

The goal of PIP-II is to double the energy achieved by its predecessor and produce a proton beam of over 1 megawatt, approximately 60% higher than existing accelerator complexes. Once operational, PIP-II will become the heart of the Fermilab accelerator complex and will provide the proton beam for a vast research programme in particle physics that will develop over several decades. ■