

EDITORIAL

The highest energy proton collider so far, the Tevatron at Fermilab, is currently running after the increase in machine energy with upgraded experiments in order to maximize its discovery potential. The HERA e–p facility at DESY has been partially limited by background and luminosity, but there are recent plans to widen and complete its overall physics goals.

The next large accelerator on the high-energy frontier, the CERN LHC, will be ready for experiments in 2007. The large R&D programme for constructing the detectors, initiated already several years ago, is now almost finished, but in some cases final production has not yet started. The construction of the multipurpose detectors, ATLAS and CMS, is advancing well, as is that of ALICE and LHC-b.

Several factories at lower energy (DAFNE, PEP-II, KEK), with detectors designed for the study of CP violation in the $K-\bar{K}$ and in the $B-\bar{B}$ systems, are now in the production phase or close to it.

High-energy physicists are showing more and more interest in underground physics, solar ν 's and ν astrophysics, cosmic γ -ray detection, and experiments in space, where fundamental questions concerning the existence of antimatter in the universe remain unanswered. Existing neutrino detectors will continue to be operated, and hopefully a new generation of detectors will significantly improve our knowledge of ν -oscillations. In this respect large detectors are being built, both at the Soudan mine and Gran Sasso, to operate with high-energy neutrino beams over a long baseline from FNAL and CERN, respectively.

The 8th Topical Seminar on Innovative Particle and Radiation Detectors focused on advanced technologies in particle physics at collider experiments and in cosmic ray astrophysics experiments, with the emphasis on their increasing applications in other fields, in particular medicine and biology, and on the need for detailed detector simulation and new computing strategies. The main topics to be covered by the conference were: tracking detectors; calorimeters; detectors for X- and γ -ray astrophysics; cosmic ray experiments in space, on the earth's surface, and underground; neutrino experiments; radiation-hard detectors and electronics; detectors for medicine and biology; large X-ray systems for security control; simulations and new computing methods; detectors for monitoring the environment.

The four-day Seminar took place in October 2002 in the Aula Magna of the University of Siena. The conference programme, addressing most of the topics, comprised about eighty talks and posters. Several review talks summarized the progress of complex projects and major facilities, shorter talks and posters covered contributions on specific items. The meeting was attended by about 100 physicists, representing 30 laboratories and coming from 10 different countries, and also by several representatives from European industry.

The Seminar was sponsored and supported by the Italian Institute for Nuclear Physics (INFN), the Universities of Bologna, Florence and Siena, the Regione Toscana, the Monte dei Paschi di Siena, the Banca di Roma, and the Electronics and Instrumentation Firm CAEN. We would like to thank the sponsoring institutions who rendered the meeting possible and in particular Prof. E. Iarocci, President of the INFN, Prof. A.M. Rossi, Director of the Physics Department of the University of Bologna, Prof. P.U. Calzolari, Rector of the University of Bologna, Prof. G. Tosi, Rector of the University of Siena and Prof. A. Scribano, Director of the Physics Department of the University of Siena. We would like to thank most warmly the secretaries of the meeting and all the people who helped us with the organization and during the meeting, Ms. F. Pizzuto and Ms. G. Pasquini of the Servizio Congressi of the University of

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