

Editorial

The recent vote of the US parliament against the construction of the SSC has cancelled one of the major facilities foreseen for elementary particle physics in the years 2000. The SSC project has been under the attack of the US administration since quite some time. We regret this blow to our field because what is at stake is the investigation of matter at its deepest level, and the discovery of the fundamental symmetries of the universe. The LHC project at CERN is now alone to face this frontier, and the present conference emphasized the instrumentation challenges which will have to be met by the future detectors at this machine. Other accelerator projects, such as linear e^+e^- linear colliders or $B\bar{B}$ -factories, which face difficult engineering problems, will also be a source of invaluable information.

A general purpose experiment at the LHC implies several thousand cubic metres of instrumented material, an increase by a factor of five compared to present LEP/SLD detectors. The development of detectors for the LHC, whether for tracking or calorimetry, is far from over, given the harsh environment of the machine with its high particle rates and high radiation levels. On the other hand, areas such as electronics and triggering are often still in the early phase of conceptual development.

The gap between particle physics and astrophysics is already narrowing so that underground facilities, high-energy cosmic ray measurements and neutrino detection will remain important research fields in the near future, complementing the results obtained with accelerators. The history of the solar neutrino problem shows indeed that a large step in detector mass is mandatory. In addition the variety of detection techniques proposed should help with the analysis and interpretation of the experiments. At the heart of particle physics, the search for proton instability is now reaching major experimental limitations and progress in detector design is necessary to improve the present lifetime limit.

The San Miniato Topical Seminar on Experimental Apparatus for High Energy Particle Physics and Astrophysics took place in April 1993 in the Conference Centre "I Cappuccini" of the Cassa di Risparmio di San Miniato. The programme comprised main lectures presenting the experiments and reviewing the state of the art; they were followed by shorter contributions addressing particular aspects and techniques.

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