EDITORIAL

The experimental progress toward the next frontiers of energy and luminosity in particle physics will depend critically on the simultaneous availability of suitable detectors and accelerators. At the moment, for example, we know how to build detectors for e^+e^- machines up to 1 TeV, but we do not know yet how to build the accelerators, unless a technical breakthrough is made. On the other hand, the technology necessary for $p\bar{p}$ machines around 10 TeV or more seems under control from practical extrapolation of existing accelerators, but we do not know how to build appropriate detectors. In general, future particle accelerators demand larger and larger apparatus with the finest possible granularity, the best possible resolution in each detector component, and, in some cases, the fastest possible data acquisition capability and/or a high filtering selectivity. The same trend in the evolution of particle detectors is observed in the experiments at underground laboratories, where energies and phenomena inaccessible to the largest imaginable accelerators may be investigated. The degree of complication has become such that particle detectors tend to be more and more qualitatively different from past facilities. In addition, there is a need for entirely new developments of detectors, components, and techniques, in order to meet the demands of the experimenters. For these reasons the role that industry can play in designing and building detectors for high-energy physics is increasing every day.

Both parties, physicists and industries, feel the need for a very close collaboration even at the R&D stage. With these ideas in mind we organized the 3rd San Miniato Topical Seminar on Perspectives for Experimental Apparatus at Future High-Energy Machines and Underground Laboratories. The meeting took place March 7–11, 1988 in the Centro Studi "I Cappuccini" of the Cassa di Risparmio di S. Miniato and was attended by many physicists and industry representatives from all over the world.

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