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The ILD detector concept for the ILC

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The ILD detector concept is a proposal for a detector at an electron –positron linear collider, in particular the international linear collider, ILC. It has been conceived as an experiment optimized for precision physics in the comparatively clean environment of electron positron collisions. The particle flow concept has played a central role in the overall optimization of the concept, which is reflected in the proposal of a highly granular calorimeter with exceptional performance. ILD in addition has put special emphasis on excellent vertexing capabilities, and a highly integrated efficient tracking system, build around a large volume advanced time projection chamber.

Over the last years the ILD concept has been developed to a point where not only a concept of the detector has been developed, but where through a series of prototyping experiments and detailed simulation a solid understanding of the overall system has been established. Realistic technologies are proposed for each sub-detector, and are validated through test experiments and simulation. A detailed model of the integrated detector has been developed and has been used to study and understand the behavior of the complete system. A series of benchmark physics reactions have been studied in full simulation to illustrate the power of the proposed detector concept. In this talk the philosophy of the ILD detector concept, its implementation and its anticipated performance are discussed.

In this presentation the overall concept of the detector is developed. Special emphasis is given to demonstrate that the key components of the system have passed stringent performance tests and have demonstrated their performance. Results from recent work on most system, in particular the vertex detector and the time projection chamber, are presented.

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