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The SiD Detector Concept for the International Linear Collider

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The SiD Detector is one of the two validated concepts for experiments at the future International Linear Collider. The SiD detector concept has been used to perform physics and benchmark studies at a 500 GeV ILC and a 3 TeV CLIC electron positron collider. SiD is a highly performant, compact, cost-constrained, detector design. It is designed to make precision measurements and be sensitive to a wide range of new phenomena. The all silicon vertexing and tracking system is the signature component of the design and is immersed in a 5 Tesla field from the superconducting solenoid. Excellent momentum resolution is achieved, as is sensitivity to single bunch crossings. The calorimetry is based on the particle flow approach to achieve excellent jet energy resolution, using a high degree of longitudinal and transverse segmentation. The iron flux return, a component of the SiD self-shielding, is instrumented for muon identification and momentum measurement. The complete detector is designed for rapid push-pull operation. The status of each subsystem of the SiD, the benchmark physics studies, and the machine-detector interface, will be discussed together with completed studies for the ILC LOI, the CLIC CDR and progress towards the ILC Detailed Baseline Design to be completed in late 2012.

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