The SiD Silicon Tracker for the ILC

The International Linear Collider (ILC) will require tracking detectors capable of precision momentum measurements while minimizing the production of secondary particles that have the potential to degrade particle-flow calorimetry. The Silicon Detector (SiD) concept is unique among the detector concepts in its choice of an all-silicon tracking detector. This choice provides high precision momentum measurements in a relatively compact volume. In the SiD detector concept, a 5 layer silicon pixel vertex detector is followed by a silicon strip outer tracker that utilizes 5 cylindrical layers and 4 forward disks. Full tracking coverage with a uniform technology is provided for almost the full solid angle ($|\cos\theta| < 0.99$). Special attention has been given to minimizing the amount of material in the tracking volume to minimize photon conversions, secondary particles, and multiple scattering effects. In this paper, the goals, design, and simulation studies for the SiD tracker are presented.