

Abstract Submitted
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The Electron Detection Efficiency of the BeamCal at the Simulated ILC¹ GLEB OLEINIK, URIEL NAUENBERG, JACK GILL, University of Colorado at Boulder, SILICON DETECTOR DESIGN STUDY COLLABORATION — We have produced measurements of the detection efficiency for electrons incident to the BeamCal in the forward region of the latest Silicon Detector (SiD) concept. SiD is an ongoing study that aims to create a detector concept to be incorporated into the International Linear Collider (ILC). We have employed the GEANT4 physics simulator to conduct in-depth simulations of the current SiD design, examining in particular its robustness in detecting events in the forward region. We require good detection efficiency in the forward region in order to veto two-photon events, which constitute a major background for several supersymmetric events. Obtaining good efficiency in this region is complicated by the massive beamstrahlung depositions there. Therefore, we have created several clustering algorithms designed to mitigate the effect of the beamstrahlung and to detect and measure the showers of electrons produced by two-photon events. We now have results for the detection efficiency with these algorithms.

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