

DigiSim: a package to simulate signal collection, propagation, and conversion

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We present the status of DigiSim, a package designed for parametric simulation of the conversion of (GEANT4) energy deposits into digitally stored “hits”, specifically for the ILC detector(s). DigiSim is well integrated to two of the most widely used reconstruction frameworks for the ILC, namely `org.lcsim/java` and `Marlin/C++`. Simple implementations exist for the most common processes, such as crosstalk, noise, discrimination, timing cuts, inefficiencies and smeared linear transformations. New features or effects can be easily added to the modular and extensible structure. In the process of simulation-based evaluation of different technology and geometry options We expect DigiSim to serve as an essential step between simulation of energy deposits in the detector volume and realistic reconstruction/analysis based on a “raw” data format similar to what we eventually expect to see from real physics runs. Detector and algorithm developers experts are encouraged to try it out and make suggestions to improve its usefulness.

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