

Particle Flow Algorithm for the SiD Concept

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After the Large Hadron Collider (LHC), the next step for making progress in Particle Physics is the International Linear Collider project which will make precision measurements, often complimentary to those from the LHC, and provide detailed insight into the anticipated discoveries. In order to achieve the physics goals, the detectors at the International Linear Collider must have fine precision - in particular, an excellent jet energy resolution will be critical to many of the measurements. Hence, calorimetry is central to each of the proposed detector concepts; the majority are based on the Particle Flow Algorithm (PFA) approach. The founding principle of a PFA is to isolate the charged and the neutral showers so that the charged energy can be measured with the excellent resolution provided by the tracking detector. Clearly, minimizing confusion between the fragments of showers from charged and neutral particles is very important, since it would otherwise lead to worsening of the resolution. Several implementations of the PFA are being attempted with a strong simulation effort by many groups. The proof of principle has to be established in order to finalize a detector design. An overview of the realities of a PFA algorithm and a summary of the status of a few of these studies from the US groups will be described with emphasis on the SiD concept.

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