

Using TurboSim for Fast Detector Simulation

The new physics searches like SUSY in the CMS detector at the LHC will require a very fine scanning of the parameter space over a large number of the points. Accordingly we need to address the problem of developing a very fast setup to generate and simulate large MC samples. We have explored the use TurboSim as a fast and the standalone setup for generating such samples. TurboSim does not intend to replace full simulation rather it uses the full simulation to create a very large lookup table for mapping the generator level particles into the particle level objects. We have used centrally generated winter-09 datasets to populate the lookup database. Here we present the details of validation exercise performed by comparing TurboSimulated events with the full detector simulation using ($Z \rightarrow ee$) candle analysis. We also compare the CPU requirements for turbosim and cms fastsim and examine the potential for extensive usage of turbosim for fast and largescale MC production for SUSY searches.

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