

Parameterized Shower

The Geant4 based full simulation agrees well with data, but consumes a lot of CPU time. The largest fraction is from following each electromagnetic (EM) shower particles in the Liquid Argon calorimeter (LAr). Parameterizing the EM shower response instead of tracking each shower particle in detail can save significant CPU time with minimal impact on physics precision. This project was initiated by SLAC in 2006. It has been completed and is now part of the standard ATLAS code as an option to be used for appropriate physics use cases.

Reports

1. [Fast shower simulation in the ATLAS calorimeter](#)
2. [First Report of the Simulation Optimization Group](#)
3. [Final report of the simulation optimization task force](#)