Contribution ID: **34**   Type: **Poster**

Mass production of air showers using Grid for Auger

The Pierre Auger Collaboration studies ultra high energy cosmic rays which induce extensive air showers when they interact at the top of the atmosphere. The generation of simulated showers involves tracking billions of particles as the shower develops through the atmosphere. The CPU time consumption of the complete simulation of a single shower is enormous but there are techniques to reduce it without losing much physical accuracy.

The high demand of computing power has driven our collaboration to adopt Grid technology for the production of our official simulations. A framework based on a set of scripts has been developed to automate all the tasks related to the handling of jobs on Grid. Additional tools allow us to monitor frequently our productions and react to changes on the Grid infrastructure. In this way we have been able to sustain a good job rate which allowed us to generate massive amounts of air showers.

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Track Classification: Track 1: Computing Technology for Physics Research