

CONEX is a new tool that combines Monte Carlo particle tracking and one-dimensional cascade equations to simulate very efficiently realistic air shower profiles. This makes it a powerful tool for high quality and high statistics air shower simulation. In particular the energy deposit profiles calculated with CONEX are well-suited to predict the signal of the Auger fluorescence detectors. Thanks to universality features of high energy air showers, the simulated CONEX shower profiles can be used to generate also an approximate three-dimensional image of a shower. Many of the natural fluctuations and properties predicted by a 'real' three-dimensional simulation with CORSIKA are reproduced in this approach.

After a brief introduction to the hybrid measurement technique of the Pierre Auger Observatory the simulation of extensive air showers with CONEX is discussed. In the second part of the talk the generation of hybrid events is presented, emphasizing the physics assumptions used to calculate three-dimensional shower images on the basis of longitudinal shower profiles of electrons and muons. It is shown that the developed method can be used to generate hybrid events for the Pierre Auger Observatory.