CORSIKA Cosmic Ray Simulation Workshop Karlsruhe



Contribution ID: 15

Type: not specified

Speedup of extensive air shower simulations with neural networks

Thursday, June 20, 2019 11:55 AM (20 minutes)

The time complexity of extensive air shower simulations rises approximately linearly with the incident particle energy for the CORSIKA 7 framework. The range of cosmic ray energies observed on earth covers several orders of magnitude. In order to simulate the highest energies in the cosmic ray spectrum, one has to introduce some sort of heuristic (e.g. thinning) which reduces runtime and preserves the shower properties to leading order. The physical content on higher order effects, like shower-to-shower fluctuations, is usually reduced. In this talk I am going to present my ideas on how to supplement current heuristics by training neural networks on CORSIKA simulations.

Summary

 Presenter:
 KÖPKE, Marcel (Karlsruhe Institute of Technology)

 Session Classification:
 Status and progress of air shower simulations