

## A Monte Carlo Simulation method based on the hits stream for the LHAASO-WCDA experiment

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The Large High Altitude Air Shower Observatory (LHAASO) will be constructed at Mt. Haizishan in Sichuan Province, China. Among several detector components of the LHAASO, the Water Cherenkov Detector Array (WCDA) is of great importance for low-to-middle energy gamma ray physics. Due to the full coverage feature of the WCDA array, the low energy threshold of particles for generating Cherenkov lights, and a large amount of Cherenkov lights collected by the PMTs, the running of the usual detector simulation code for high energy air showers are quite memory- and CPU-consuming, with a consequence that the simulation job dies in the middle-way or lasts for a very long time. Targeting this problem, a new simulation method based on the hits stream is developed. The method breaks the simulation into several steps, in every step the ROOT tree is employed as the container for every kinds of hits. Tests show that the new method can efficiently solve the memory-consuming problem, and even can speed up the simulation procedure, as the real description and simulation of the key components of the detector can be carried out in a later fast step. The interface codes of this solution is quite general and could be used by other experiments.

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