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CORSIKA 8 – A novel high-performance computing tool for particle cascade Monte Carlo simulations

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The CORSIKA 8 project is an international collaboration of scientists working together to deliver the most modern, flexible, robust and efficient framework for the simulation of ultra-high energy secondary particle cascades in matter. The main application is for cosmic ray air shower simulations, but is not limited to that. Besides a comprehensive collection of physics models and algorithms relevant for the field, also all possible interfaces to hardware acceleration (e.g.\ GPU) and parallelization (vectorization, multi-threading, multi-core) will be provided. We present the status and roadmap of this project. This code will soon be available for novel explorative studies and phenomonological research, and at the same time for massive productions runs for experiments.

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