

Simulations of radio emission from air showers with CORSIKA 8

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CORSIKA 8 is a new framework for air shower simulations implemented in modern C++17, based on past experience with existing codes like CORSIKA 7. The flexibility of this framework allows for the inclusion of radio-emission calculations as an integral part of the program. Our design makes radio simulations general and gives the user the freedom to choose between different formalisms, such as the “Endpoints” and “ZHS” formalisms. In addition, it takes advantage of the flexibility of the CORSIKA 8 environment and geometry design, allowing future updates to more complex scenarios such as showers crossing from air into dense media. Our first results, along with comparisons with other simulation programs like CoREAS in CORSIKA 7 and ZHAireS are going to be presented. In the future, based on our design, the opportunity arises for radio simulations to achieve a significant boost in performance by deploying parallel computing techniques, in particular employing GPUs, and hence, perform more sophisticated radio-emission studies.

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