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PROPOSAL: A library to propagate leptons and high energy photons

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PROPOSAL is a Monte Carlo simulation library, usable both in C++ and via a python wrapper, used to describe the propagation of highly energetic particles. Originally designed to provide a precise description of muon and tau propagation, recent updates introduced both photon propagation as well as a more precise implementation of electron and positron propagation. Due to its modular code structure, the user can either use the complete propagation routine provided by PROPOSAL to easily simulate all secondaries created during particle propagation or extract individual parts of the propagation routine to use them in specific applications. Examples of applications of PROPOSAL are its usage in the simulation chain of the IceCube Neutrino Observatory as well as its implementation as an electromagnetic shower model in the upcoming eighth version of the extensive air shower simulation framework CORSIKA. This talk provides a general overview of the functionalities and possibilities of PROPOSAL.

Primary author(s) : ALAMEDDINE, Jean-Marco (Technische Universität Dortmund)

Co-author(s) : SOEDINGREKSO, Jan (TU Dortmund); SANDROCK, Alexander (NRNU MEPhI); SACKEL, Maximilian (Technische Universität Dortmund)

Presenter(s) : ALAMEDDINE, Jean-Marco (Technische Universität Dortmund)

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