

Towards electron-ion event generation in Pythia

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General-purpose event generators such as Pythia are programs that model complete particle interactions, including the hard process, parton showers, multiparton interactions, hadronization, etc. The objective of these generators is to provide state-of-the-art predictions for high energy collisions, and are essential for bridging the gap between theoretical models and experimental data. Pythia also includes the Angantyr framework for heavy ion collisions. One of the long-term goals of the Pythia collaboration is to extend this framework to electron-ion collisions.

In this talk, I present our initial work towards this goal. In this first step, we consider vector meson dominance (VMD) processes where the interaction is initiated by a photon that fluctuates into a vector meson, i.e. processes that are essentially hadronic interactions. These interactions will be implemented for both photon-proton, as well as photon-ion via the Angantyr framework, and are relevant for modelling the resolved state of a low-virtuality photon. We compare the results to full photoproduction in photon-proton.

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