

Upgrade and design of the Pluto event generator

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Due to the fact, that experimental setups are usually not suited to cover the complete full solid angle, event generators are very important tools for experiments. Here, theoretical calculations provide valuable input as they can describe specific distributions for parts of the kinematic variables very precisely. The caveat is that an event has several degrees of freedom which can be correlated. Practically, the experimental physics need a tool in hand which allows for the exchange of almost all kinematic variables with a manageable user interface.

Recently, the user-friendly Pluto event generator was re-designed in order to introduce a more modular, object-oriented structure, thereby making additions such as new particles, decays of resonances, new models up to modules for entire changes easily applicable. Overall consistency is ensured by a plugin- and distribution manager.

One specific feature of Pluto is that we do not use monolithic decay models but allow for the splitting into different models in a very granular way (e.g. to exchange form factors or total cross sections). This turned out to be a very important tool in order to check various scenarios among with measured data, which will be outlined with a few examples

Therefore Pluto allows for the attachment of secondary models for all kinds of purposes. Here, a secondary model is an object for a particle/decay returning a (complex) number as a function of a defined number of values. All models are connected via a relative data base.

All features can be employed by the user without re-compiling the package, which makes Pluto extremely configurable.

In our contribution, we present the new structure for the Pluto event generator, originally intended to work for experiment proposals but now upgraded to allow for the implementation of user-defined functions and models.

Presentation type (oral | poster)

oral

Summary

In our contribution, we present the new structure for the Pluto event generator for hadronic interactions, originally intended to work for experiment proposals but now upgraded to allow for the implementation of user-defined functions and models.

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