Contribution ID: **849**   Type: **Parallel Talk**

JETSCAPE 1.0: The first software release of the JETSCAPE collaboration

Wednesday 16 May 2018 11:30 (20 minutes)

The Jet Energy-loss Tomography with a Statistically and Computationally Advanced Program Envelope (JETSCAPE) Collaboration is developing an innovative modular event generator to be used by the wider community. In this talk we highlight the performance of the year-1 release of the JETSCAPE software, which consists of an overall framework program, and of several physics modules. The framework organizes the order in which different modules are called, how these can interact with each other, and how the final results are stored or written out. The physics modules provide individual energy loss schemes synchronized by the framework.

The year-1 setup invokes TRENTO for the initial energy density distribution for nucleus-nucleus collisions, which is then used as the initial state for the MUSIC fluid dynamics event generator. The initial binary collision profile from TRENTO is sampled to call PYTHIA events, which generate hard outgoing partons. The passage of these partons through the space-time profile generated by MUSIC is simulated via four different energy loss modules: HYBRID, LBT, MARTINI and MATTER. These can be combined for multi-stage event generation. Hadronization is carried out via Cooper-Frye for the soft medium, and via PYTHIA for the hard sector.

Comparison with experimental results and the resulting determination of input parameters is performed using statistical emulators using Bayesian techniques. In this presentation, we outline the experimental observables that can be successfully described using such a next-generation event generator and discuss the upcoming improvements and enhancements of the year-2 software.

Content type

Theory

Collaboration

JETSCAPE

Centralised submission by Collaboration

Presenter name already specified

Author: JETSCAPE

Presenter: KAUDER, Kolja (Wayne State University)

Session Classification: Jet modifications and high-pT hadrons

Track Classification: Jet modifications and high-pT hadrons