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## An Improved String Hadronization Model: ATROPOS

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Up to this date the process of hadronization is considered to be a “black box” as its soft nature does not allow to build a consistent theory. Instead, different models are used to describe the production of final-state hadrons, among which string models are considered to be the most successful.

There are some unresolved problems of the hadronization that existing models fail to prevail: the inability to use the same model to describe the fragmentation of light and heavy quarks, no angular momentum conservation, only simplified string dynamics and the use of initial conditions that do not satisfy the gauge of the string theory.

To overcome these challenges, a new model, called ATROPOS, was developed. It is based on the Area Decay Law that steers the fragmentation process, and the open relativistic string dynamics is derived from (modified) Nambu-Goto action. To take into account the masses of heavy quarks, model uses the apparatus, suggested by Barbashov and Nesterenko.

A real highlight of the study is the investigation of the ways to define the initial conditions that are used to calculate string movement. Interesting results are obtained by considering the restrictions imposed by Virasoro conditions and 4-momentum vector and angular momentum tensor conservation. It is shown, that a very non-trivial method to define initial state of the string must be used even for the simplest case of the zero-gluon string with free ends.

The first results of the hadronization simulation performed for  $e^+e^-$  events are presented and discussed. The influence of the string angular momentum on the hadron production is considered.

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