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Geant4 FTF Model Description of the NA61/SHINE Collaboration Data on Strange Particle Production in pp-interactions

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Geant4 FTF Model Description of the NA61/SHINE Collaboration Data on Strange Particle Production in pp-interactions

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Geant4 is the well-known package for simulation of particle penetration in matter which is used in many high energy experiments. There is FTF (Fritiof) model in Geant4. The FTF model is responsible for simulations of elementary interactions. We compare the FTF model results on inclusive distributions of Λ, K0s, Ξ-, anti-Ξ+ and K*(892)0 produced in pp interactions at Plab=158 GeV/c recently measured by the NA61/SHINE collaboration. It is found that for a good description of the K*(892)0 mesons it is needed to set up the ratio of pseudo-scalar to vector meson probability as 0.4/0.6 in a production. A description of the Ξ- and anti-Ξ+ hyperons requires a special treatment of fragmentation of anti-diquark – diquark strings with low masses, and an additional tuning of quark and diquark fragmentation functions. With all of these, we reproduce Λ and K0s spectra well. It is the best model description of the strange particle production in the literature. The collaboration could not be able to describe its data using the EPOS 1.99 model.

The speaker is a student or young scientist

No

Section

1. Intermediate and high energies, heavy ion collisions

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