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## Hadron production measurements in pion-carbon interactions by NA61/SHINE experiment at the CERN Super-Proton Synchrotron

*Friday 12 January 2018 17:40 (20 minutes)*

NA61/SHINE is a fixed target experiment designed to study hadron-proton, hadron-nucleus and nucleus-nucleus interactions at the CERN Super-Proton-Synchrotron. In this contribution we will discuss results from pion-carbon collisions recorded at beam momenta of 158 and 350 GeV/c. Hadron production measurements in this type of interactions is of fundamental importance for the understanding of the muon production in extensive air showers. In particular, production of (anti)baryons is one of the mechanisms responsible for increasing the number of muons in air shower. A possible underestimation of the production rate of (anti)baryons in current hadronic interaction models could be one of the sources of the excess of muons observed by cosmic ray experiments, like Pierre Auger Observatory. The results on the production spectra of  $\pi^\pm$ ,  $K^\pm$ ,  $p(\bar{p})$ ,  $\Lambda(\bar{\Lambda})$  and  $K_S^0$  will be presented, as well as their comparison to predictions of hadronic interaction models currently used in air shower simulations.

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