

Measurements of hadron production from p+C interactions at 31 GeV/c from NA61/SHINE at the CERN SPS.

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Preliminary results on K_S^0 production in p+C interactions at 31 GeV/c using data registered during the 2007 run are shown. In addition, an overview of charged pion and kaon results [1,2] is presented. These results are needed for the high precision determination of background contamination in the neutrino beam of Tokai to Kamioka (T2K) experiment at J-PARC [3]. The decay of pions and kaons mainly contribute to production of conventional muon neutrino beams. Therefore, direct measurements of these hadron yields are of high importance. Knowledge of neutral kaon production is also required for the accurate calculation of the ν_e and $\bar{\nu}_e$ fluxes from $K_L^0 \rightarrow \pi e \nu_e$ decays. NA61/SHINE is a fixed-target experiment with a rich physics program [4]. The main physics part is connected with hadron production in hadron-nucleus and nucleus-nucleus collisions. Due to a large acceptance and good particle identification in the forward direction, NA61/SHINE is well suited for measuring particle production to improve the predictions of neutrino flux simulations. Performance of the NA61/SHINE detector is discussed. Inclusive production cross-sections for π^+ , π^- , K^+ , and K_S^0 as a function of laboratory momentum and polar angle with statistical and systematic errors are shown. K_S^0 / K^+ and K_S^0 / π^+ ratios are also presented. Results are compared to the predictions of the Monte Carlo models (Fluka, VENUS, UrQMD).

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