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News on charged and neutral hadron production from NA61/SHINE

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The NA61/SHINE experiment at the CERN SPS performs a systematic scan in collision energy and system size to study the onset of deconfinement and the mechanisms of strangeness production in strongly interacting matter. This contribution presents recent results on both charged and neutral hadron production in nucleus–nucleus collisions.

Hadron production results, including the K^+/π^+ ratio in central Pb+Pb collisions at $\sqrt{s_{\mathrm{NN}}} = 7.6$ GeV, are presented, confirming the "horn" structure previously observed by NA49. This is extended with the new preliminary results on the π/N_{W} ("kink") ratio from the Xe+La energy scan, which demonstrate a behavior similar to that seen in Pb+Pb. Complementary results on Λ baryon production in the 10% most central Ar+Sc collisions at $\sqrt{s_{\mathrm{NN}}} = 5.1$–$16.8$ GeV) are also reported. The energy dependence of the Λ/π and strangeness-to-pion ratios is compared with existing proton-proton and nucleus-nucleus data, as well as model predictions. These new results are investigated in the context of the onset of deconfinement and of various hadron production mechanisms relevant at the SPS energy range.

Finally, new preliminary results on the excess of charged over neutral kaons in Ar+Sc collisions at $\sqrt{s_{\mathrm{NN}}} = 8.8$ GeV will be discussed as further confirmation of the significant isospin violation previously observed by NA61/SHINE at $\sqrt{s_{\mathrm{NN}}} = 11.9$ GeV.

Authors: LEWICKI, Maciej (The Henryk Niewodniczański Institute of Nuclear Physics Polish Academy of Sciences); BALKOVA, Yuliia (National Centre for Nuclear Research, Warsaw)

Presenter: LEWICKI, Maciej (The Henryk Niewodniczański Institute of Nuclear Physics Polish Academy of Sciences)

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