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Systematics of strange hadron yields from heavy-ion collisions at few GeV

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Basing on the available published yields of strange hadrons emitted from heavy-ion collisions at beam kinetic energies within 0.6A - 3A GeV we propose the parametrizations of yields of $K^{\pm}$, K^0_s, ϕ mesons and $\Lambda + \Sigma^0$ hyperons as function of available energy and mean number of participants, A_{part}. As different sources estimate A_{part} using three different models, we performed the Glauber Monte Carlo calculaions for all the systems [1]. We found that the α exponent of yield dependency on A_{part} appears not to change with beam energy and provide its found value.

After positive comparisons of our parametrizations with the experimental data, we provide the predictions of strangeness yields for some currently analysed and planned experiments. The predictions cover: Ag+Ag at beam kinetic energies of 1.23A and 1.58A GeV (HADES), Au+Au at 0.6A and 0.8A GeV (HADES), Au+Au at 2.91A GeV (STAR) and Au+Au at 2A, 4A and 6A GeV (CBM). For the Ag+Ag data we also compare our results with the predictions of public versions of RQMD.RMF, SMASH and UrQMD transport models.

[1] C. Loizides, J. Kamin, D. d'Enterria, Phys. Rev. C 97, 054910 (2018).

Collaboration

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