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Kaon and Lambda production in heavy ion collisions

Content :

A microscopic approach has been employed to study the Λ and kaon productions in heavy ion collisions. The productions of K^+ and Λ have been studied within the framework of Boltzmann transport equation for various beam energies. An exhaustive set of reactions have been considered for strangeness productions in hadronic system.
We find a non-monotonic horn like structure for K^+/π^+ (as experimentally observed) when plotted against centre of mass energies ($\sqrt{s_{\mathrm NN}}$) with the assumption of initial partonic phase for $\sqrt{s_{\mathrm NN}}$ beyond a certain threshold.
However, the ratio shows a monotonic nature for all $\sqrt{s_{\mathrm NN}}$ when a hadronic initial state is considered. We attribute this to the release of large number of colour degrees of freedom at higher collision energies. Experimental values of K^-/π^- are also reproduced within the ambit of the same formalism. Results on Λ/π ratio for different $\sqrt{s_{\mathrm NN}}$ - ranging from AGS to RHIC will also be reported.

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