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Discriminating mass and species type behavior of produced particles at FAIR energies - A new approach

The variation of width of the rapidity distribution on beam rapidity and the rapidity distribution of strangeness enhancement factor have been studied with UrQMD generated mesons and baryons at various FAIR energies to ascertain mass/species type behavior of produced articles. The width of the rapidity distribution is found to bear a power law with beam rapidity with a clear indication of violation of mass ordering when both mesons and baryons are plotted together. Results on strangeness enhancement factor E_S of various strange particles also reveal a similar mass ordering violation indicating species (meson/baryon) -type behavior of produced particles at FAIR energies.

Author: DEY, Kalyan (Gauhati University, Guwahati)

Co-author: BHATTACHARJEE, Dr. Buddhadeb (Department of Physics)

Presenter: DEY, Kalyan (Gauhati University, Guwahati)