HAW05-2005-000059

Abstract for an Invited Paper
for the HAW05 Meeting of
the American Physical Society

Recent Results on Strangeness and Exotics at RHIC

HELEN CAINES, Yale University

I will give a brief overview on strangeness production at RHIC. Yields and spectra of strange hadrons have been measured as a function of centrality in 200 GeV AuAu, dAu, and CuCu collisions as well as in pp events. Thus, system size effects on strange particle production and their kinematics, such as flow and the nuclear modification factors, R(CP), can be studied. The excitation function of these variables in AuAu collisions at 62 and 130 GeV will be discussed together with measurements from the AGS and SPS. In particular the R(CP) at lower energies can test the energy and centrality dependence of partonic energy loss and quark recombination models. Short-lived resonances which may decay and regenerate in the medium are used to examine the medium's dynamical evolution between particle production and thermal freeze-out. Next-to-leading order (NLO) pQCD calculations show interesting deviations from the measurements of strange baryon and meson spectra in RHIC pp collisions but describe the kinematics of π rather well. By comparing the strangeness data to tuned PYTHIA and new NLO calculations, we can begin to determine the contributions from individual flavors to the fragmentation process in pp. Correlation studies with K^0, Λ, and Anti-Λ in pp, dA, and AA collisions have been made to probe modifications of this fragmentation process by the medium. I also present the latest status on the search for exotica, such as strangelets and penta-quarks, at RHIC.