Abstract Submitted
for the DNP08 Meeting of
The American Physical Society

Baryon resonance yields after QGP hadronization INGA KUZNETSOVA, JOHANN RAFELSKI, University of Arizona — Yields of baryon resonances which have been studied at RHIC, considering their decay (e.g. $\Delta(1232) \to N + \pi$, $\Sigma(1385) \to \Lambda + \pi$), are studied in the framework of a kinetic master equations. The detailed balance requirement implied that they can be also produced by back-reaction. Particularly interesting is the case of entropy rich QGP fast hadronization leading to initial above chemical equilibrium yields of hadrons. In this case the resonance yield in a rapidly expanding system does not always develop towards global chemical equilibrium. We find that a significant additional hadron resonance yields can be produced by the back-reaction of the over-abundance of the decay products of resonances. A more complex situation arises for a relatively narrow resonance such as $\Lambda(1520)$, which can be in part seen as a stable state, which is depopulated to increase the heavier resonance yield. We find that a suppression of yield of such resonances, as compared to statistical hadronization model is possible. The pattern of deviation of hadron resonance yields from expectations based on statistical hadronization model are another characteristic signature for a fast hadronization of entropy rich QGP. The total yields of the ground state baryons used in analysis of data (such as N, Λ) are not affected.

Inga Kuznetsova
University of Arizona

Date submitted: 01 Jul 2008 Electronic form version 1.4