

Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Baryon clustering in high energy heavy ion collisions, with and without a critical point EDWARD SHURYAK¹, State Univ of NY- Stony Brook — Clustering in systems with attractive forces are known in many physical settings: for example in formation of globular clusters in Galaxies. Formation of nuclear fragments is a well known phenomenon in low energy nuclear collisions, especially at temperatures $T \sim 10 \text{ MeV}$ near gas-liquid critical point. This work is however about a freezeout stage of high energy collisions, with $T = 100 - 150 \text{ MeV}$, where clustering is reflected by subtle correlations, such as large kurtosis of the baryon distribution. We use classical molecular dynamics and Langevin equation to model the system. In the vicinity of the hypothetical QCD critical point one expects certain modification of the nuclear forces, with a critical mode adding weak long-range attraction, and we study how it may influence the baryon clustering.

¹this is not an invited talk but submitted to normal parallel section on heavy ion physics

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Date submitted: 15 Dec 2017

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