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Ω and ϕ production in p+p, Au+Au and U+U collisions at STAR

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Multi-strange hadrons are excellent probe to the hadronization of the hot and dense medium produced in heavy ion collisions, since they may decouple earlier from the hadronic system. The STAR measurements of Ω to ϕ ratio and Ω , ϕ nuclear modification factors at intermediate p_T at top RHIC energies are consistent with expectations from recombination/coalescence models, which assume a seemingly thermalized partonic medium created at RHIC. However, the limited statistics put large uncertainties in those measurements. The high-statistics p+p, Au+Au and U+U data collected by STAR during the years of 2011 and 2012 will enable a high-precision systematic survey of these observables. Comparing data from Au+Au and U+U collisions also allows us to identify possible different medium properties due to different system size.

In this talk, we present the measurements of Ω and ϕ production in $\sqrt{s} = 200$ GeV p+p, $\sqrt{s_{NN}} = 200$ GeV Au+Au, 193 GeV U+U collisions. The Ω , ϕ nuclear modification factors and Ω to ϕ ratios will be presented for both Au+Au and U+U up to $p_T \sim 6$ GeV/c. Strangeness enhancement factors for Ω and ϕ in U+U, Au+Au with respect to p+p collisions will be presented as well. Implications on collision dynamics will be discussed.

On behalf of collaboration:

STAR

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