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ϕ production in ${}^3\text{He}+\text{Au}$ collisions at $\sqrt{s_{NN}} = 200$ GeV with the PHENIX detector at RHIC

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The ϕ production in high-energy heavy-ion collisions provides key information on the hot and dense state of the strongly interacting matter produced in such collisions. They are sensitive to the medium-induced effects such as strangeness enhancement, modification of the resonance line shapes and their relative production rates in leptonic and hadronic decay modes linked to the chiral symmetry restoration. Measurements in the dilepton channels are especially interesting since leptons interact only electromagnetically, thus carrying the information from their production phase directly to the detector. Measurements of ϕ production in ${}^3\text{He}+\text{Au}$ collisions, a new collision system, add to the existing results ($p+p$, $d+\text{Au}$ and $\text{Cu}+\text{Au}$) which extends our ability to have a systematic study of nuclear medium effects on ϕ production. The PHENIX detector provides the capabilities to measure the ϕ production in a wide range of transverse momentum and rapidity to study various cold nuclear effects such as soft multiple parton rescattering and modification of the parton distribution functions in nuclei.

In this poster, we report the current status of the ϕ meson production measurement from ${}^3\text{He}+\text{Au}$ collisions at $\sqrt{s_{NN}} = 200$ GeV.

On behalf of collaboration:

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