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Invariant yield and nuclear modification factor of the ϕ meson in p+Al, p+Au, and ^{3}He+Au collisions of systems at $\sqrt{s_{NN}}$ = 200 GeV JAMES SHIRK, Georgia State University, PHENIX COLLABORATION — The measurement of ϕ mesons provides a unique and complementary method for exploring properties of the quark-gluon plasma (QGP). The ϕ meson has a relatively small hadronic interaction cross section and is sensitive to the increase of strangeness in the QGP (strangeness enhancement), a phenomenon associated with soft particles in bulk matter. Measurements in the dilepton channels are especially useful since leptons interact only electromagnetically, thus carrying the information about their production directly to the detector. Measurements in different nucleus-nucleus collisions allow us to perform a systematic study of the nuclear medium effects on ϕ meson production and gain better insight to the formation of the QGP. With data taken by the PHENIX detector in 2014 and 2015, we measure the ϕ meson production in a wide range of transverse momenta and rapidity. In this talk, we present the status of ϕ meson invariant yield and nuclear modification (R_{AA}) measurements in a variety of small collision systems, including p+Al, p+Au, and ^{3}He+Au at $\sqrt{s_{NN}}$ = 200 GeV. The data are compared with the AMPT "A Multi-Phase Transport" model.

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