Contribution ID: **160** Type: **Oral report**

φ-meson production in small systems collisions

Monday 12 October 2020 17:25 (25 minutes)

The meson has a small inelastic cross section for interaction with nonstrange hadrons, therefore it is less affected by late hadronic rescattering and better reflects the initial evolution of heavy ion collisions. Small systems, such as p+Al, p+Au, and ^{3}He+Au, can help us understand whether the suppression of hadron yields in the region of intermediate to large transverse momenta is associated with hot (QGP) or cold nuclear matter effects. In this talk we will present a study devoted to the phi meson production in small collisions systems at $\sqrt{s_{NN}} = 200$ GeV as measured by the PHENIX experiment at RHIC. The -meson production shows a small system size dependence in the most central p+Al, p+Au, ^{3}He+Au collisions, and the nuclear modification factors are consistent with those of the ^{0} within uncertainties for all three collision systems. Implications for hadronization and strangeness production will be discussed.

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Session Classification: Section 4. Relativistic nuclear physics, elementary particle physics and high-energy physics

Track Classification: Section 4. Relativistic nuclear physics, elementary particle physics and high-energy physics.