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## Study of bulk properties through $\phi$ -meson in Au+Au collisions at high $\mu_B$ using the PHSD model

Wednesday 28 August 2024 12:20 (20 minutes)

Quark-gluon plasma (QGP) matter is created in heavy-ion collisions at relativistic speeds. The  $\phi$ -meson ( $s\bar{s}$ ) produced during heavy-ion collisions is expected to have a small hadronic interaction cross-section and thus retain information from the early stages of the QGP medium. Therefore, the study of strangeness production and collectivity plays a significant role in understanding the properties of QGP medium in relativistic heavy-ion collisions. Collectivity can be studied through the azimuthal anisotropy by the Fourier expansion of the azimuthal distributions of produced particles relative to the reaction plane.

In this talk, we will present transverse momentum ( $p_T$ ) spectra and elliptic flow ( $v_2$ ) of  $\phi$ -meson at mid-rapidity ( $|\eta| < 1.0$ ) in Au+Au collisions at high baryonic chemical potential ( $\mu_B$ ) region using the Parton Hadron String Dynamics (PHSD) model. The  $\phi$ -meson invariant yield and  $v_2$  as a function of  $p_T$  will be presented. Additionally, the beam energy dependence of particle yield ( $dN/dy$ ),  $\langle p_T \rangle$ , and  $\langle v_2 \rangle$  will be discussed in comparison to the available published experimental results. These model calculations could provide insight for the upcoming Compressed Baryonic Matter (CBM) experiment at the Facility for Antiproton and Ion Research (FAIR) and the Multi-Purpose Detector (MPD) experiment at the nucletron-based ion collider facility (NICA).

### Internet talk

No

### Is this an abstract from experimental collaboration?

No

### Name of experiment and experimental site

N/A

### Is the speaker for that presentation defined?

Yes

### Details

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