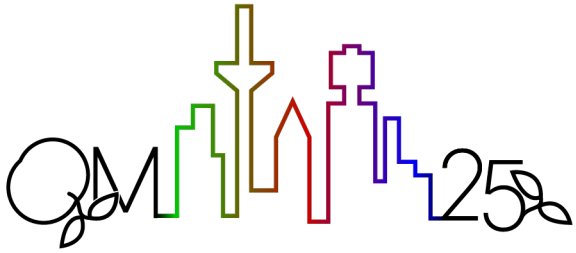

Contribution ID: **123** Type: **Poster**

Dilepton yield as a probe of nuclear deformation in relativistic heavy-ion collisions

The dilepton production yield is sensitive to the nuclear density within the partonic and hadronic matter, which can be influenced by the initial states of the nuclei. The production of dileptons in the Au+Au and U+U collision systems is studied at relativistic heavy-ion collisions with different initial nuclear deformation profiles. Moreover, the contributions of dileptons from both quark-antiquark pairs in the partonic phase and ρ^0-meson decay in the hadronic phase are considered. We compare the dilepton production with the STAR data in Au+Au collision system at 200 GeV and use these results as a baseline for the U+U systems. The difference in multiplicity distributions resulting from the different deformation factor β_2, leads to a greater suppression of dilepton production in systems with a larger $|\beta_2|$, especially in the most central collisions. It was found that the integrated dilepton yield from the partonic phase is more sensitive to the $|\beta_2|$ than that from the ρ^0 decay in the U+U system. Furthermore, it has a two-order polynomial function tendency as a function of β_2 in both the low- and intermediate-mass regions of the dilepton, which can serve as a probe to extract the deformation factor of the Uranium nucleus.

Category

Theory

Collaboration (if applicable)

Author: ZHOU, Wen-Hao (西安航空学院)

Co-author: Dr SUN, KaiJia (Institute of Modern Physics, Fudan University, Shanghai, China)

Presenter: ZHOU, Wen-Hao (西安航空学院)

Session Classification: Poster session 1

Track Classification: Initial state of hadronic and electron-ion collisions & nuclear structure