

Direct Photon Yield and Thermal Dielectron Flow in Isobar Collisions at STAR

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Thermal dileptons, produced throughout the entire evolution of relativistic heavy-ion collisions, are unique penetrating probes of the hot and dense medium as they escape without being subject to strong interactions. By measuring the transverse momentum distribution of direct virtual photons and elliptic flow (v_2) of dileptons emitted from the hot QCD medium, one can extract key properties of the Quark-Gluon Plasma (QGP), such as its temperature and collective expansion, while gaining insights into the mechanisms of thermal radiation.

In this talk, we will present the first measurement by STAR of thermal dielectron elliptic flow in isobar collisions (Ru+Ru and Zr+Zr) at $\sqrt{s_{NN}} = 200$ GeV. The thermal dielectron v_2 will be presented as a function of mass in different p_T intervals. Additionally, we extract the direct photon invariant yield via internal conversion method. Physics implications of direct virtual photon yield and the thermal dielectron v_2 will be discussed.