



Contribution ID: 655

Type: Oral

## Measurement of low $p_T$ direct photons with PHENIX

*Tuesday, 5 September 2023 15:30 (20 minutes)*

Photons provide snapshots of the evolution of relativistic heavy-ion collisions as they are emitted at all stages and do not interact with the medium strongly. Measurements of low momentum direct photons at PHENIX across different systems, from  $p + p$ ,  $p/d/{}^3\text{He} + \text{Au}$  to  $\text{Au} + \text{Au}$  have been made possible due to the versatility of RHIC. An excess of direct photons, above prompt photon production from hard scattering processes and consistent with thermal photon emission is observed. The integrated yields scale as  $(dN_{ch}/d\eta)^\alpha$ , with  $\alpha = 1.12$ , above multiplicities of 20-30. However, for systems with lower multiplicities, a gradual increase from  $p + p$ -like to  $A + A$ -like behavior is observed. In addition to the results for direct photon spectra for small and large collision systems, in this talk, azimuthal anisotropies of direct photons in  $\text{Au} + \text{Au}$  collisions at 200 GeV will also be presented, thereby, shedding light on the long-standing direct photon puzzle.

### Category

Experiment

### Collaboration (if applicable)

PHENIX

**Primary author:** DOOMRA, Vassu (Stony Brook University)

**Presenter:** DOOMRA, Vassu (Stony Brook University)

**Session Classification:** EM Probes

**Track Classification:** EM Probes