

Abstract Submitted
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Multiplicity and pseudo-rapidity distributions of photons at forward rapidity in STAR at RHIC energies DRONIKA SOLANKI, University of Rajasthan, Jaipur, India — The main goals of the STAR experiment at Relativistic Heavy Ion Collider (RHIC) is to study the properties of the QCD matter at extremely high energy and parton densities. The photon multiplicity is measured in the STAR experiment at RHIC energies by a Photon Multiplicity Detector (PMD) in pseudo-rapidity region $-3.7 \leq \eta \leq -2.3$. The variation of particle density in pseudo-rapidity (η) with collision centrality can shed light on the relative contribution of soft and hard (perturbative QCD jets) processes in particle production. The pseudo-rapidity distributions are found to be sensitive to the effects of re-scattering, hadronic final-state interactions, and longitudinal flow. We study the centrality and energy dependence of photon multiplicity away from mid-rapidity to explore if the longitudinal scaling observed for Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and 62.4 GeV holds at lower energies also. For photons, this scaling was found to be independent of collision energy, event centrality as well as system size at $\sqrt{s_{NN}} = 200$ GeV and 62.4 GeV. Here we intend to measure the same for Au+Au collisions at $\sqrt{s_{NN}} = 39, 27$ and 19.6 GeV. We will compare these results with published results from 200 GeV and 62.4 GeV and also with models.

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