

Centrality Determination and Study of Pileup Effects in Au+Au Collisions at $\sqrt{s_{NN}} = 3$ GeV from STAR

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1 In fixed target heavy ion experiments, multiple collision events may pile up in
2 a recorded event due to the finite thickness of the target. This imposes a serious
3 challenge to the analysis of higher cumulants of proton multiplicity distributions.
4 In this talk we will present the result of the collision centrality determination and
5 the study of pileup effect in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV with the fixed-
6 target mode (beam energy of 3.85 GeV/u) at STAR. We will utilize different
7 sub-detectors to separate single and pileup events. The multiplicity distributions
8 will be compared to MC Glauber model calculations for centrality determination
9 and the remaining event pileup fraction can be evaluated. Furthermore, the
10 influence of the pileup events on higher-order proton cumulants will be discussed
11 using transport model calculations.