

Abstract Submitted
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A Study on Double Event Detection for PHENIX at RHIC SEBASTIAN VAZQUEZ-CARSON, None, PHENIX COLLABORATION¹ — Many measurements made in Heavy Ion experiments such as PHENIX at RHIC focus on geometrical properties because phenomena such as collective flow give insight into quark-gluon plasma and the strong nuclear force. As part of this investigation, PHENIX has taken data in 2016 for deuteron on gold collisions at several energies. An acceptable luminosity is achieved by injecting up to 120 separate bunches each with billions of ions into the storage ring, from which two, separate beams are made to collide. This method has a drawback as there is a chance for multiple pairs of nuclei to collide in a single bunch crossing. Data taken in a double event cannot be separated into two independent events and has no clear interpretation. This effect's magnitude is estimated and incorporated in published results as a systematic uncertainty and studies on this topic have already been conducted within PHENIX. I develop several additional algorithms to flag multiple interaction events by examining the time dependence of data from the two Beam-Beam Counters – detectors surrounding the beam pipe on opposite ends of the interaction region. The algorithms are tested with data, in which events with double interactions are artificially produced using low luminosity data.

¹I am working at the University of Colorado at Boulder on behalf of the PHENIX collaboration.

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None

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