

Gold Beam Injection Efficiency at the AGS Booster*, L.A. AHRENS, S.Y. ZHANG, BNL - The Relativistic Heavy Ion Collider (RHIC) at the BNL requires the AGS to provide Gold beam with the intensity of 10^9 ions per bunch. In the AGS Booster, the Gold beam injection efficiency has been found to decrease with the rising intensity of injected beam from the Tandem Van de Graff. In this article, the experiment by adjusting the Tandem beam intensity and by scraping the beam in the Booster will be examined. The study suggests that the Gold beam injection efficiency at the AGS Booster is related to the beam loss at certain locations, rather than the circulating beam, in the ring. Given some unavoidable beam loss mechanism, injecting more ions, the efficiency could drop to a point that yields less beam at the Booster extraction. In fact, this turning point of the injection efficiency has already been reached. The beam loss is not related to the background vacuum pressure. It could however, be related to the target or electrons that the beam loss created.

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