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Results from Fixed-Target Collisions from STAR: Au+Al at

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The RHIC Beam Energy Scan (BES) was proposed to search for the possible critical point and to study the nature of the phase transition between hadronic and partonic matter. However, several dynamical model simulations (UrQMD, PHSD, QGSM, GiBUU, 3-fluid) suggest that the partonic phase is entered for center-of-mass collision energies as low as 4-5 GeV [1]. Collisions between beam halo nuclei and the aluminum beam pipe allow STAR to study fixed-target Au+Al collisions. The injection and sub-injection energy gold beams (kinetic energies of 8.8, 4.8 and 2.9 AGeV) produce Au+Al collisions at center-of-mass energies of 4.5, 3.5, and 3.0 GeV. Particle ratios will be presented and compared to earlier published results from the AGS, SPS, and RHIC. Fixed target acceptances and efficiencies for tracking in the TPC and particle identification in the Time of Flight system will be discussed.

References:

[1] I.C. Arsene et al., Phys. Rev. C75, 034902 (2007).

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