Systematic Study of \( Au - Au \) Collisions at the AGS by Experiment 917

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Abstract

Experiment E917 at the AGS has assembled a systematic set of measurements from \( Au - Au \) collisions in the AGS energy regime. Studies of stopping and strangeness production have been made as a function of centrality at \( \sqrt{s_{NN}} = 3.8, 4.2, \) and 4.8 A-GeV using single-particle spectra of \( \pi, K, p, \) and \( \Lambda. \) At \( \sqrt{s_{NN}} = 4.8 \) A-GeV, these studies are complemented by measurements of strangeness and antibaryon production using \( \phi, \bar{\Lambda} \) and \( \bar{p} \) spectra. Baryonic directed flow has been measured at \( \sqrt{s_{NN}} = 4.2 \) and 4.8 A-GeV. Three-dimensional Hanbury-Brown Twiss source radii as a function of the reaction plane have been measured at \( \sqrt{s_{NN}} = 4.8 \) A-GeV. Comparisons within this data set, to other measurements from heavy-ion collisions both at this collision energy and at others, and to measurements from \( p - p \) collisions will be shown.