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 $Au - Au$ collisons 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 π, K, p, and Λ. At $\sqrt{s_{NN}} = 4.8$ A·GeV, these studies are complemented by measurements of strangeness and antibaryon production using ϕ, $\bar{\Lambda}$ 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.