

Rapidity Dependence of Identified-Pion Elliptic Flow at RHIC

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The measured elliptic flow (v_2) of identified particles as a function of p_t and centrality at RHIC suggests the created medium in Au+Au collisions achieves early local thermal equilibrium that is followed by hydrodynamic expansion[1]. These measurements of identified particle elliptic flow have been limited, however, to a narrow region about mid-rapidity ($|\eta| \sim 1$). Elliptic flow measurements of charged hadron show a significant reduction of v_2 at forward pseudorapidities[2]. It is not known whether this pseudorapidity dependence is a general feature of elliptic flow, or reflects other changes in the particle spectra such as a changing baryon/meson ratio in going to the forward reaction region. The BRAHMS experiment provides unique capabilities to measure v_2 at forward rapidities. Using the BRAHMS multiplicity array, it is possible to determine the elliptic flow event plane, thus enabling a measurement of identified particle elliptic flow in the BRAHMS spectrometer arms, with $0 < \eta < 3.4$. This talk will discuss identified-pion elliptic flow at $\eta = 0, 1, 2.7$ and 3.4 from Run 4 Au+Au collisions at $\sqrt{s_{nn}} = 200$ GeV. In addition, the p_t -integrated flow for charged hadrons obtained using just the multiplicity array will be presented.

[1] C. Adler et al., PRL 87, 182301(2001).

[2] B.B. Back et al., PRL 89, 222301(2002).