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Calculations of Transverse Energy from Single Particle Spectra Measured in Relativistic Heavy Ion Collisions TANNER MENGEL, BENJAMIN SMITH, BISWAS SHARMA, NATHAN WEBB, SOREN SORENSEN, CHRISTINE NATTRASS, University of Tennessee, Knoxville — During relativistic collisions of heavy nuclei, such as gold, a hot dense medium know as Quark Gluon Plasma (QGP) is formed. As a consequence of such collisions, particles are ejected transverse to the beam axis. The transverse momentum distributions, measured by the STAR and PHENIX experiments at the Relativistic Heavy Ion Collider (RHIC) in Brookhaven National Laboratory, are used to calculate the transverse energy of ejected particles. These momentum distributions correspond to nine centralities for eight identified particles, $\pi^{\pm}, K^{\pm}, \Lambda, \bar{\Lambda}, p$, and $\bar{p}$, at eight different center-of-mass energies per nucleon. Comparing the estimated transverse energy shows the systematic biases of the different methods used to measure ejected particles during heavy ion collisions. We describe methods used in calculating the transverse energy contributions from each of the identified particles in published momentum spectra, as well as assumptions made for calculating energy contributions from unmeasured particles, such as, η, n, π^0 and K^0_s.

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