

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Calculation of transverse energy from single particle momentum spectra¹ CHRISTINE NATTRASS, BISWAS SHARMA, SOREN SORENSEN, BEN SMITH, TANNER MENGEL, CHARLES HUGHES, NATHAN WEBB, University of Tennessee — In high energy heavy ion collisions, measurements of transverse energy (E_T) can constrain the initial energy density and therefore provide insight into the formation of the Quark Gluon Plasma (QGP). This is particularly interesting in regions where it is unclear if the QGP is formed. The E_T in a collision can be measured either from a calorimeter or calculated from the single particle momentum spectra. We use spectra measured by the STAR collaboration to calculate the transverse energy in heavy ion collisions from the RHIC Beam Energy Scan. We use these calculations to calculate the distribution of E_T by particle type. These calculations are compared to PHENIX measurements using a calorimeter. Prospects for similar calculations in small systems are discussed.

¹This work was supported in part by funding from the Division of Nuclear Physics of the U.S. Department of Energy under Grant No. DE-FG02-96ER40982 and from the National Science Foundation under Grant No. OAC-1550300. We also acknowledge support from the UTK and ORNL Joint Institute for Computational Sciences Advanced Computing Facility.

Christine Nattrass
University of Tennessee

Date submitted: 08 Jan 2021

Electronic form version 1.4