Background Effects on Jet Detection in Heavy Ion Collisions ALEXANDER AUKERMAN, CHARLES HUGHES, THOMAS KROBATCH, ADAM MATYJA, CHRISTINE NATTRASS, JAMES NEUHAS, SOREN SORENSEN, WILL WITT, University of Tennessee — Heavy ion collisions performed at the LHC and RHIC at large energy scales produce a liquid of quarks and gluons known as a Quark-Gluon Plasma (QGP). Jets, which are collimated bunches of particles emitted from highly energetic partons, are produced at the early stages of these collisions, and can provide information about the properties of the QGP. Partonic energy loss in the medium can by quantified by measurements of fragmentation functions. However, the high background energies resulting from emissions uncorrelated to the initial hard scatterings in the heavy ion collisions place limitations on jet detection methods and fragmentation measurements. For the purpose of investigating the limitations on these current jet detection methods we generated a heavy ion background based on charged hadron data. We explore the behavior of a jet finding algorithm with our generated background to examine how the presence of a heavy ion background may affect the measurements of jet properties.

Alexander Aukerman
University of Tennessee