

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Novel Methods for Measuring the Fragmentation Function of Jets in Heavy Ion Collisions Using Jet-Hadron Correlations¹ CHARLES HUGHES, ALEX AUKERMAN, THOMAS KROBATSCH, University of Tennessee, Knoxville, ADAM MATYJA, The Henryk Niewodniczanski Institute of Nuclear Physics, CHRISTINE NATTRASS, JAMES NEUHAUS, WILLIAM WITT, University of Tennessee, Knoxville — Detailed investigation of low momentum (10-60 GeV) jet fragmentation functions may complement previous studies by providing more information on partonic energy loss. The main difficulty in studying low momentum jets in heavy ion collisions is the significant uncorrelated background of low momentum hadrons from soft processes. One way to deal with this background is to use jet-hadron azimuthal correlations to fit and subtract the soft, flow correlated background information from the jet (on the average). This technique allows one to measure the near side yield in the correlation function after background subtraction for a large number of jets binned in jet transverse momentum (pT) and hadron transverse momentum. From these yields, one can construct an uncorrected fragmentation function. We discuss the specifics of this proposed method of measuring the fragmentation function including corrections for detector effects. We present the results of a Monte Carlo study using Pythia and a custom made Heavy Ion Background Generator (with mocked up detector effects) that demonstrate the feasibility of this method.

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.

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Date submitted: 24 Jun 2020

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