

Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Short-Range Correlation Studies on ^{12}C with 6-9 GeV/c Proton Beams JOHN WATSON, Kent State University, Kent, OH 44240, ELIEZER PIASETZKY, Tel Aviv University, Tel Aviv, Israel, MISAK SARGSIAN, Florida International University, Miami, FL 33199 — Reactions at beam momenta and momentum transfers of several GeV/c can probe nuclei on a size scale where nucleon-nucleon short-range correlations (SRCs) are expected to be dominant. We will report on measurements of the $^{12}\text{C}(p, 2p+n)$ reaction at Brookhaven National Laboratory at beam momenta of 6 to 9 GeV/c. For that experiment, the primary reaction was quasi-elastic knockout of a proton from ^{12}C , followed by emission of a coincident neutron. For neutron momenta $\geq k_F$ (220 MeV/c), the reconstructed momentum of the knocked-out proton, and the measured momentum of the detected coincident neutron are nearly back-to-back in the laboratory frame of reference, which is a strong kinematic signature of SRCs [1]. After correction for neutron-detection efficiency, solid angle coverage, and absorption of the incoming and outgoing nucleons, we find that $92 \pm 18\%$ of nuclear protons with momenta ≥ 275 MeV/c have correlated neutron partners [2]. [1] A. Tang et al., Phys. Rev. Lett. 90 042301 (2003).

[2] E. Piasezky et al., Phys. Rev. Lett. 97 162504 (2006).

Misak Sargsian
Florida International University, Miami, FL 33199

Date submitted: 09 Jan 2009

Electronic form version 1.4