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Isospin Dependence of the EMC Effect and Short range Correlations BARAK SCHMOOKLER, Massachusetts Inst of Tech-MIT, MEYTAL DUER, Tel Aviv University, AXEL SCHMIDT, SHALEV GILAD, Massachusetts Inst of Tech-MIT, LARRY WEINSTEIN, Old Dominion University, ELIEZER PIASETZKY, Tel Aviv University, OR HEN, Massachusetts Inst of Tech-MIT — The number of Short-Range Correlated (SRC) pairs in nuclei is known to linearly correlate with the strength of the European Muon Collaboration (EMC) effect. This linear correlation has lead to theoretical models of the EMC effect where primarily nucleons which are members of SRC pairs are modified. Since, as recent measurements have shown, the overwhelming majority of these SRC pairs are neutron-proton (np) pairs, a consequence of a SRC-based EMC effect is an isospin-dependence to the EMC effect. That is, a larger fraction of protons than of neutrons should be modified in asymmetric, neutron-rich nuclei. By constructing per-neutron and per-proton SRC and EMC cross-section ratios, we look at how the number of correlated pairs depends on the number of neutrons and protons. With these new normalizations, we find that the per-neutron EMC slopes and SRC ratios both saturate much sooner than the standard per-nucleon quantities, starting already with Carbon; while the per-proton values continue to increase, even going from Iron to Gold. In addition, we extract a universal EMC modification function based on the assumption np pair dominance. Using the saturation of the per-neutron quantities, we make predictions of the magnitude of the EMC effect in heavy nuclei.

Barak Schmookler
Massachusetts Inst of Tech-MIT

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