

TITLE:Comparing proton and neutron momentum distributions in ${}^3\text{He}$ ¹

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ABSTRACT:

Nucleon-nucleon Short Range Correlation (SRC) are an important part of nuclear structure.

Being a result of the strong short range nucleon-nucleon interaction in many body systems, N-N SRCs contribute to the high energy part of the nuclear wave function and can also result in modification of the nucleons in the correlation.

We want to extract the $\{{}^3\text{He}(e, e'p)/{}^3\text{He}(e, e'n)\} / \{{}^4\text{He}(e, e'p)/{}^4\text{He}(e, e'n)\}$ double ratio using Thomas Jefferson National Accelerator Facility (JLab) Hall-B e2a 2.261 GeV, 4.461 GeV, and later also e2b experiment data. The ratio ${}^4\text{He}(e, e'p)/{}^4\text{He}(e, e'n)$ should be one, difference from one will be due to detector effects, so by taking the double ratio we hope to cancel these effects.

These analysis will provide important knowledge on nucleon momentum distributions in ${}^3\text{He}$.

¹I. For more details go to <https://www.jlab.org/indico/event/125/session/9/contribution/86/material/slides/0.pdf>