# PHYSICS SEMINAR


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## An Overview and Update of the MARATHON Experiment at Jefferson Lab


Abstract

Since the pioneering Deep Inelastic Scattering experiment at SLAC, experiments have sought to better constrain the $F_2^n/F_2^p$ structure function ratio. With no free neutron target, experiments have relied on deuterium in order to extract $F_2^n$, which can introduce large uncertainties in the ratio at high Bjorken $x$. Experiment E12-010-103 (MARATHON) was performed in Hall A at Jefferson Lab in 2018. Utilizing a novel experimental method, MARATHON measured the $F_2^n/F_2^p$ structure function ratio at high Bjorken $x$, by exploiting the mirror symmetry of the $^3$H and $^3$He nuclei. Likewise, MARATHON will also provide the EMC effect of the mirror nuclei. In this talk I will provide an overview of the MARATHON experiment as well as discuss its current status.


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**2:00 p.m.**