



**Old Dominion University
Department of Physics
Colloquium**

Tuesday, November 14, 2023

"Neutron spin study using polarized ^3He target at JLab and EIC"

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Abstract:

Understanding the origin of the spin of nucleons is an overarching challenge for nuclear physics research. The spin structure information of proton and neutron are both crucial for flavor separation study but there are a very limited number of neutron spin measurements due to the lack of a free neutron target. Therefore, Polarized ^3He has been used as an effective neutron target for neutron spin study. A comprehensive neutron spin physics program using CLAS12 and a polarized ^3He target at JLab will be presented in this talk. The DIS and semi-DIS measurements will provide access to study flavor dependence of the quark polarization determining their transverse momentum dependence. The Quasi-elastic measurement will provide information on the ground states of ^3He which will help to suppress the largest systematic uncertainty from the spin structure function extraction to obtain high-precision measurements. I will also present the study of neutron spin using polarized ^3He and double spectator tagging measurements at EIC.

Presentation: OCNPS 200 @ 3:00 pm
Refreshments: OCNPS Atrium @ 2:30 pm

All interested persons are cordially invited to attend.