

Nuclear Seminar

Feb 7thth @ 9:00 AM in RM 179

Using electron scattering to study strong
and electroweak interactions at JLAB

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Since the 1960's, deep inelastic lepton scattering (DIS) has served as an important tool to study the structure of the nucleon and strong interactions. Data from unpolarized DIS established the quark model of the nucleon and the perturbative feature of QCD; and data from doubly-polarized DIS is the primary source for our knowledge on the spin structure of the nucleon.

In this talk I will focus on a third type of DIS: measurement of the parity violation asymmetry using a polarized beam and an unpolarized target (PVDIS). The physics of PVDIS will be reviewed. The PVDIS asymmetry can be used to extract the poorly known weak coupling constant $C2q$; and it is also sensitive to many exciting hadronic effects such as charge symmetry violations. Then I will present a Jefferson Lab 6 GeV PVDIS experiment (E08-011) which was recently re-approved by the PAC. I will also present some ideas for extending the PVDIS program to the JLab 12 GeV Upgrade.