



Contribution ID: 191

Type: **Contributed talk**

Measurements of the Electric Form Factor of the Neutron at High Q^2

Thursday, 11 July 2024 15:00 (20 minutes)

Electromagnetic form factors, which are accessible via elastic electron scattering, encapsulate information on the charge and current structure inside the nucleons. The data on the nucleon form factors allows flavour separation analysis, for which early measurements have provided striking results indicating to a di-quark component in a nucleon. Form factors also provide important constraints on Generalized Parton Distributions. The large acceptance Super Bigbite Spectrometer (SBS) developed in Jefferson Lab Hall A seeks to extend measurements of the nucleon form factors to unprecedented high values of the four momentum transfer squared Q^2 . The 11 GeV electron beam at Jefferson Lab makes this possible. The electric form factor (G_E) of the neutron is the least well understood of the four Sachs form factors, due to its small magnitude and the experimental complexity required in accessing it. The GEN-II experiment, which uses novel convection type polarised helium-3 targets, will provide results for G_n^E at three kinematic points 2.9, 5.5 and 9.9 GeV². I provide an overview of the experimental technique and present preliminary results from the completed kinematic points.

session

A. Facilities and Detectors

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Session Classification: A. Facilities and Detectors