Argonne NATIONAL LABORATORY

PHY Seminar

Physics Division Seminar

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Elastic Nucleon Form Factors at High Momentum Transfer

Host: Jose Repond

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The electromagnetic form factors of the nucleon provide experimental access to the underlying charge and magnetic moment distributions of protons and neutrons which are generated predominantly by the strong force interaction. These form factors provide excellent testing grounds for QCD and QCD-inspired models and are fundamentally important in understanding non-perturbative strong force physics. By studying them over a broad range of momentum transfers, they provide insight into the underlying mechanisms relevant to nucleon structure and for a region of sufficiently high momentum transfer in particular, a transition to scaling behavior dependent on the quark and gluon degrees of freedom is expected. In this talk I will provide an overview of our present experimental knowledge of elastic nucleon form factors at high Q^2, compare them to current theoretical models, and discuss upcoming future measurements of the Super Bigbite program at Jefferson Lab.