Service de Physique Nucléaire

Séminaire

le vendredi 4 Décembre 2009 à 11h

CEA Saclay, Orme des Merisiers, Bât. 703, Salle 135

The Science Program of CLAS12 and the JLab 12 GeV Upgrade.

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In October 2008, the Department of Energy (DoE) approved the construction of the energy doubling of the CEBAF electron accelerator at the Jefferson Lab in Newport News, Virginia. This marked an important milestone in this $310M project - the transition from R&D and design to actual construction. In this presentation I will discuss some of the highlight of the science program that has been proposed for the CLAS12 detector, a large acceptance detector planned for use in a broad program of hadron physics. A major focus will be the study of the Generalized Parton Distributions (GPDs) which have been revolutionizing our way of thinking about the intrinsic structure of the proton. Knowledge of the GPDs will allow the construction of 3D images of the proton in transverse space and longitudinal momentum. Previously, the structure of the proton was studied through its charge and current distribution in elastic electron scattering and in deep inelastic inclusive processes. The profound relationship between these orthogonal descriptions of the proton was hidden due to the lack of a framework that would connect these descriptions in a theoretically consistent way. The GPDs provide a transparent description of this connection, and opened up a new avenue of research that will bring us a step closer to a detailed understanding of the protonÕs intrinsic structure. The concept of GPDs will be introduced at an elementary level from an experimentalistÕs perspective, and an overview of the experimental program with CLAS12 will be presented. Finally, I will discuss the status of the upgrade project and the CLAS12 detector and its expected performance.

Le café sera servi 10 minutes avant

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