

Seminar

Department of Physics

THE E-906/SEAQUEST EXPERIMENT AT FERMILAB

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The E-906/SeaQuest experiment at Fermilab continues a series of Drell-Yan measurements to explore the antiquark structure of the nucleon and nuclei. To extend existing measurements to larger values of Bjorken- x , a 120 GeV proton beam extracted from Fermilab's main injector is used, resulting in a factor of 50 more luminosity than previous experiments and enabling access to values of x up to 0.9. An overview will be presented of the key physics goals of the E-906/SeaQuest collaboration. These include investigation of the dramatic $d\bar{u}$ flavor asymmetry in the nucleon sea and its behavior at high x ; study of the EMC effect in Drell-Yan scattering and the unexpected absence of any antiquark excess in existing data; and measurements of the angular dependence of the Drell-Yan process, sensitive to spin-orbit correlations within the nucleon. Updates to the SeaQuest experiment with polarized beam (E-1027) and target (E-1039) will allow to study the spin-orbit correlations in the analysis of single-spin asymmetries providing complimentary information to the existing SIDIS data. The talk will conclude with a status report on the ongoing data taking and data analysis of this new experiment.

Wednesday, January 14, 2015

3:00 pm to 4:00 pm

SERC, Room 408