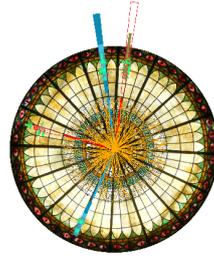


# DIS 2015 - XXIII. International Workshop on Deep-Inelastic Scattering and Related Subjects

## DIS 2015

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## Polarized Drell-Yan measurements at Fermilab: The future of the SeaQuest experiment

*Thursday, 30 April 2015 08:55 (25 minutes)*

The SeaQuest experiment at Fermilab continues a series of Drell-Yan measurements to explore the antiquark content of the nucleon and to study the modifications to the nucleon structure when the nucleon is embedded into a 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 50 times more luminosity than previous experiments and enabling access to values of  $x$  up to 0.9.

A brief overview will be presented of the key physics goals of the 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. A status report on the ongoing data taking and analysis of this new experiment will be given.

The focus of the talk will be on the SeaQuest upgrades with polarized target (E-1039) and polarized beam (E-1027). Polarized Drell-Yan measurements are the missing component in the global analysis of transverse-momentum-dependent PDF (TMD) and will provide complementary information to existing data from semi-inclusive DIS. The SeaQuest upgrade with polarized target will allow a first measurement of the Sivers TMD for sea quarks; the upgrade with polarized beam will allow to constrain the sign, size, and maybe the shape of the Sivers TMD for valence quarks.

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