## Abstract Submitted for the DNP12 Meeting of The American Physical Society

Exploring Light Anti-quark Asymmetry with the SeaQuest **Experiment**<sup>1</sup> ZHONGMING QU, University of Michigan, SEAQUEST COLLAB-ORATION — The Fermilab E906/SeaQuest experiment measures the anti-quark structure of the nucleon which eventually will give unique insight into the origin of the sea quarks. The predecessor E866/NuSea experiment showed a clear asymmetry of the ratio for Bjorken x < 0.2 while it approaches unity for x > 0.25, indicating clear deviations from the phenomenological models. The E906/SeaQuest experiment will measure the Drell-Yan cross section in p-p and p-d scattering and will determine the  $d/\bar{u}$  asymmetry over 0.04<x<0.45, thus extending the available E866 measurements to a higher x region. The experiment has finished taking commissioning data in May 2012 using liquid hydrogen and deuterium targets. It will resume taking data in early 2013. The 120GeV beam extracted from the Fermilab Main Injector increases the event rate by factor of 50 compared to E866. This will significantly improve the statistics during the expected two-year run from early 2013 to Dec 2014. The scientific motivation as well as the current status, primarily the design, performance, and the future improvements of the current cryogenic targets will be presented. The expected results from E906/SeaQuest experiment will also be addressed.

<sup>1</sup>This work is supported by the NSF.

Zhongming Qu University of Michigan

Date submitted: 03 Jul 2012

Electronic form version 1.4