

Abstract Submitted  
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**Exploring the EMC Effect and Anti-Shadowing at Fermilab E906/SeaQuest**<sup>1</sup> MANDI CROWDER, Abilene Christian University, SEAQUEST/FNAL E906 COLLABORATION — Fermilab E906/SeaQuest will use Fermilab's 120 GeV Main Injector on the nuclear targets Ca, W, and C to investigate how sea quark distributions differ in nuclear matter. The European Muon Collaboration (EMC) discovered that the quark structure of a nucleon has a different momentum distribution than that of nuclei. SeaQuest is a fixed target experiment designed to extract the sea anti-quark structure of the proton by measuring the Drell-Yan cross-section ratio for proton-proton and proton-deuterium collisions. The data gathered will also aid in understanding parton energy loss in cold nuclear matter, which is a prerequisite to understanding energy loss in hot nuclear matter at RHIC and the LHC. Anti-shadowing causes higher energy loss but was not observed in Fermilab E772 Drell-Yan data. SeaQuest will study these nuclear effects for the anti-quark distributions over the anti-shadowing ( $0.1 < \text{Bjorken } x < 0.2$ ) and EMC ( $0.2 < x < 0.5$ ) regions to a much higher precision than E772.

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Mandi Crowder  
Abilene Christian University

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