

Abstract Submitted
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Improving Trigger Timing¹ LACEY MEDLOCK, Abilene Christian University, SEAQUEST COLLABORATION — SeaQuest (Fermilab 906) is a fixed-target experiment that uses the 120 GeV Fermilab Main Injector to collide protons with stationary targets. One of its primary goals is to study the ratio of anti-down to anti-up quarks that exist in the proton via the Drell-Yan process, in which an anti-quark and quark annihilate into a photon that then decays into a pair of muons. A previous Fermilab experiment, E866/NuSea measured this asymmetry and indicated possible surprising behavior when the anti-quark in a proton carries a larger fraction of its momentum. SeaQuest will investigate this behavior. The SeaQuest detector relies on plastic scintillators to provide signals to know when a particle goes through the detector. The scintillators are up to 72” in length and thus can give signals that last 20-25 ns, which is an issue because protons arrive every 18.9 ns. This gives a possibility of confusion of scintillator signals from two different proton collisions. In order to reduce the pulse length and in turn the number of missed events, we attached short wires that reflect an inverted pulse due to an impedance mismatch via an attached resistor. The wires make the signal length short enough to resolve this problem. These short wires with resistors are referred to as clip lines, which were constructed and installed on all scintillation detectors in the SeaQuest experiment.

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