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Track Reconstruction at SeaQuest[1] REUBEN BYRD, Abilene Christian University, SEAQUEST COLLABORATION — The SeaQuest experiment, at Fermi National Accelerator Laboratory, is a fixed target experiment that uses the Drell-Yan process to measure the quark and antiquark structure in the nucleon sea. A naïve assumption is that the number of anti-up and anti-down quarks within a nucleon sea would be the same. However, evidence shows that this is not true. The goal of SeaQuest is to more accurately measure this asymmetry in the nucleon sea. In this process event tracking is an integral step in analyzing the data collected. This is difficult due to the size of the experiment, the number of detectors and the beam dump. The beam dump is a 5m block of iron that lies just beyond the target to protect the detectors from the beam. This poses a problem for accurately tracking muons back to the target. Therefore, it is important to crosscheck two independent event trackers. Sqerp, the SeaQuest Event Reconstruction Program, is one of these trackers used at SeaQuest. This tracks events through two magnets, 4 detector stations, and 18 planes of wires. Sqerp deals with difficult problems such as matching hits in each detector station and how detector alignment affects this. This poster will focus on the methods used by Sqerp and the work done in optimizing these processes.

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Reuben Byrd
Abilene Christian University

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