Abstract Submitted
for the NES11 Meeting of
The American Physical Society

Pion Identification Methods in Pion Photoproduction Measurements at MAX-lab[1] DANIEL KELLEHER, University of Massachusetts Dartmouth, FOR THE MAX-TAGG COLLABORATION — One of the unsolved problems in nuclear physics is describing the properties of nucleons in terms of the framework provided by Quantum Chromodynamics (QCD). To do this, the comparison of experimental measurement with theoretical predictions can be made for those reactions where both theory and experiment can be performed accurately. One reaction where this is possible is pion photoproduction near threshold, which is a fundamental reaction in which a photon interacts with a a proton or neutron to produce a pion. Theoretical approaches such as Chiral Perturbation Theory and model-independent partial-wave analysis can provide accurate predictions for this reaction. A program to measure the $\gamma p \rightarrow pi^{+}n$ reaction is underway using the MAX-lab photon tagging facility in Lund, Sweden. One difficulty with these measurements is isolating the pion events from the large proton and electron background present in the counters. By searching for the extra energy deposited from the $\pi \rightarrow \mu$ decay, it is possible to reliably identify the pion events. This event identification technique will be discussed and additional tests used to confirm the reliability of this method will be shown.

[1]Sponsored by NSF OISE/IRES award 0553467

Grant O'Rielly
University of Massachusetts Dartmouth

Date submitted: 11 Mar 2011 Electronic form version 1.4