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A search for the decay $\eta' \to \pi^+\pi^-\pi^0$ in CLAS data MICHAEL ROSENMAN, MATT BELLIS, CURTIS MEYER, Carnegie Mellon University, CLAS COLLABORATION — The primary decay modes for the η' are $\pi^+\pi^-\eta$ and $\rho\gamma$, with respective branching ratios of 44.5% and 29.4%. The g11 dataset from Jefferson Lab and the CLAS detector contains about 500,000 events of the type $\gamma p \to p\eta'$ where the η' is reconstructed from the former decay mode. Access to relatively large statistics motivated the search for previously unseen decay modes. With the excellent charged track identification that CLAS possess, a search was made for the decay $\eta' \to \pi^+\pi^-\pi^0$. This decay is listed in the PDG with only an upper limit of a 5% branching ratio at CL=90%. We search for this decay by measuring all charged tracks in the final state and reconstructing the neutral pion. We see no evidence for this decay and present the results of a careful study which shows that η' peaks in this channel are more likely bleed-through from misidentified $\pi^+\pi^-\gamma$ decays.

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