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Charged-Current Neutrino-induced Neutral Pion Production at SciBooNE

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SciBooNE, located in the Booster Neutrino Beam at Fermilab, collected data from June 2007 to August 2008 to accurately measure muon neutrino and anti-neutrino cross sections on carbon below 1 GeV neutrino energy. SciBooNE is studying charged current interactions. Among them, neutral pion production interactions will be the focus of this poster. The experimental signature of neutrino-induced neutral pion production is constituted by two electromagnetic cascades initiated by the conversion of the π^0 decay photons, with an additional muon in the final state for CC processes.

In this poster, I will present how we reconstruct and select charged-current muon neutrino interactions producing π^0 's in SciBooNE. For this purpose, data from all three SciBooNE sub-detectors is used. A preliminary measurement of the overall rate for this process to occur in neutrino-mode, as well as distributions in key π^0 observables, will be given. Data will be compared to expectations from two widely-used neutrino event generators: NEUT and NUANCE.

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