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A Precision Measurement of the $K_L \to 3\pi^0$ Dalitz Branching Ratio MICHAEL FARRINGTON, University of Chicago, KOTO COLLABORATION — Over the course of recent runs, the KOTO Experiment has collected 1.8 million $K_L \to 3\pi^0$ decay events yielding an incredible amount of virtually background-free π^0decay data. This offers an opportunity to study π^0decay to make a precision measurement of the π^0 Dalitz decay branching ratio. The E14 KOTO detector provides an excellent means of identifying π^0 Dalitz decay with a 2576 crystal CsI calorimeter covered by a plastic scintillator charged particle detector. To identify π^0 Dalitz decay I will study 6 cluster decay events with energy deposits on the charged particle detector and compare them with a dataset of simulated $K_L \to 3\pi^0$ events using Geant4 to perform a measurement of the branching ratio.

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