



Contribution ID: 41

Type: **not specified**

## A Precision Measurement of the $K_L \rightarrow 3\pi^0$ Dalitz Decay Branching Ratio

*Wednesday, 18 August 2021 13:15 (15 minutes)*

Over the course of recent runs, the KOTO Experiment has collected 1.8 million  $K_L \rightarrow 3\pi^0$  decay events yielding an incredible amount of virtually background-free  $\pi^0$  decay data. This offers an opportunity to study  $\pi^0$  decay to make a precision measurement of the  $\pi^0$  Dalitz decay branching ratio. The E14 KOTO detector provides an excellent means of identifying  $\pi^0$  Dalitz decay with a 2576 crystal CsI calorimeter covered by a plastic scintillator charged particle detector. To identify  $\pi^0$  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  $K_L \rightarrow 3\pi^0$  events using Geant4 to perform a measurement of the branching ratio.

**Primary author:** FARRINGTON, Michael (University of Chicago)

**Presenter:** FARRINGTON, Michael (University of Chicago)

**Session Classification:** Wednesday