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Present status of the $K_L \to \pi\iota^0\nu\nu$ search with the KOTO detector at J-PARC[1] BRIAN BECKFORD, Univ of Michigan - Ann Arbor, KOTO COLLABORATION — The KOTO experiment at J-PARC continues its effort to observe and study the $K_L \to \pi\iota^0\nu\nu$ decay. One of the best methods to search for new physics (NP) is to look for events that are theoretically clean and exceedingly rare. The Standard Model (SM) prediction for this (FCNC) process is 3.0 x 10^{-11} with minor uncertainties, making it an ideal process to investigate. From the experimental runs in 2015, KOTO set an experimental upper limit on the branching fraction to be <3.0 x 10^{-9}. The branching ratio is proportional to the height of the kaon unitary triangle and any observation above the SM prediction would be a clear signature of physics beyond the SM (BSM). The decay is identified by a pair of photons from the π^0 decay and no other particles detected. KOTO used a Cesium Iodide (CSI) electromagnetic calorimeter to measure the energies and positions of the photons. The decay volume was surrounded by hermetic veto counters to ensure that there were no other particles. We analyzed data taken in 2016-2018 from 3.1 x 10^{19} protons on target (POT). This presentation will present the status of KOTO with data taken in 2016-2018 and the future outlook of the search for $K_L \to \pi\iota^0\nu\nu$.

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