Contribution ID: **857** Type: **Parallel Talk**

Latest results from CUPID-0

Saturday, 9 July 2022 14:45 (15 minutes)

CUPID-0 is a pilot experiment in scintillating cryogenic calorimetry for the search of neutrino-less double beta decay ($0\nu\beta\beta$). 26 ZnSe crystals were operated continuously in the first project phase (March 2017 - December 2018), demonstrating unprecedented low levels of background in the region of interest at the Q-value of ^{82}Se. From this successful experience comes a demonstration of full alpha to beta/gamma background separation, the most stringent limits on the ^{82}Se $0\nu\beta\beta$, as well as the most precise measurement of the ^{82}Se half-life ($2\nu\beta\beta$). After a detector upgrade, CUPID-0 began its second and last phase (June 2019 - February 2020). We present the latest results on the $0\nu\beta\beta$ decay of ^{82}Se, both to the ground and excited states, with the full isotope exposure of 8.82 kg $\times$ yr. We set a lower bound to the ground state $0\nu\beta\beta$ half life $T_{1/2}(^{82}\mathrm{Se}) > 4.6 \times 10^{24}$ yr (90% C.I.). We review the most recent results from a Bayesian search for spectral distortions to the ^{82}Se double-beta decay spectrum due to exotic decay modes.

In-person participation

Yes

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