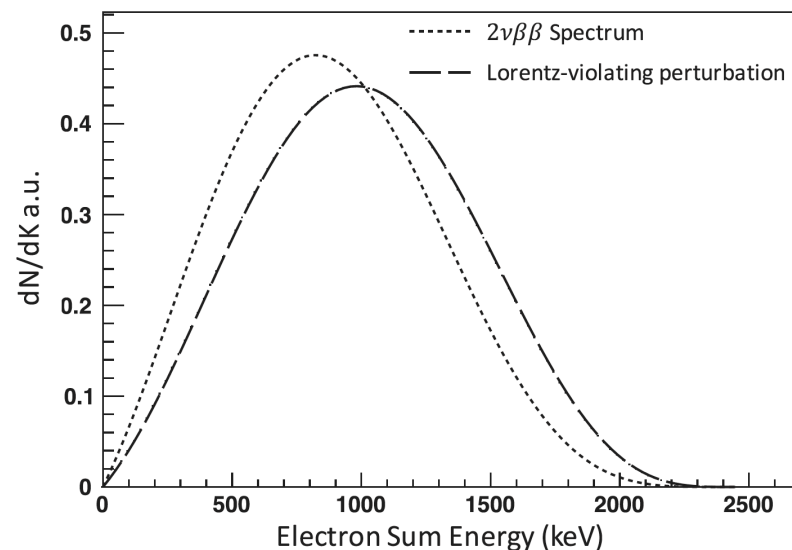
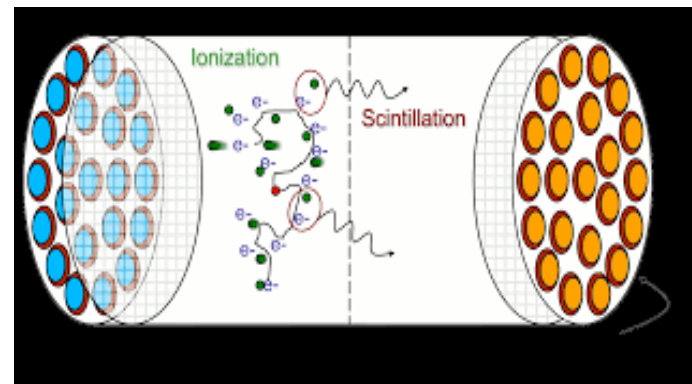


Jonathan Echevers

University of Illinois at Urbana-Champaign

A Search for CPT and Lorentz Violation with the Complete EXO-200 Dataset

- EXO-200 is a 200 Kg liquid xenon time-projection chamber to search for neutrinoless double beta decay
- Events in the region of interest produce ionization (electrons) and scintillation (photons) that we use to reconstruct and classify each event as either signal or background
- The ultra-low background of this experiment allows for other exotic searches, such as CPT and Lorentz violation



Jonathan Echevers
University of Illinois at Urbana-Champaign

- Large data set of 1181 live days of data-acquisition
- Deep neural network used for neutrinoless double beta decay search¹
- Reconstruction algorithm only used $E > 1000$ keV region
- For Lorentz and CPT violation search we will need to optimize the reconstruction algorithms for full spectrum

¹ <https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.123.161802>