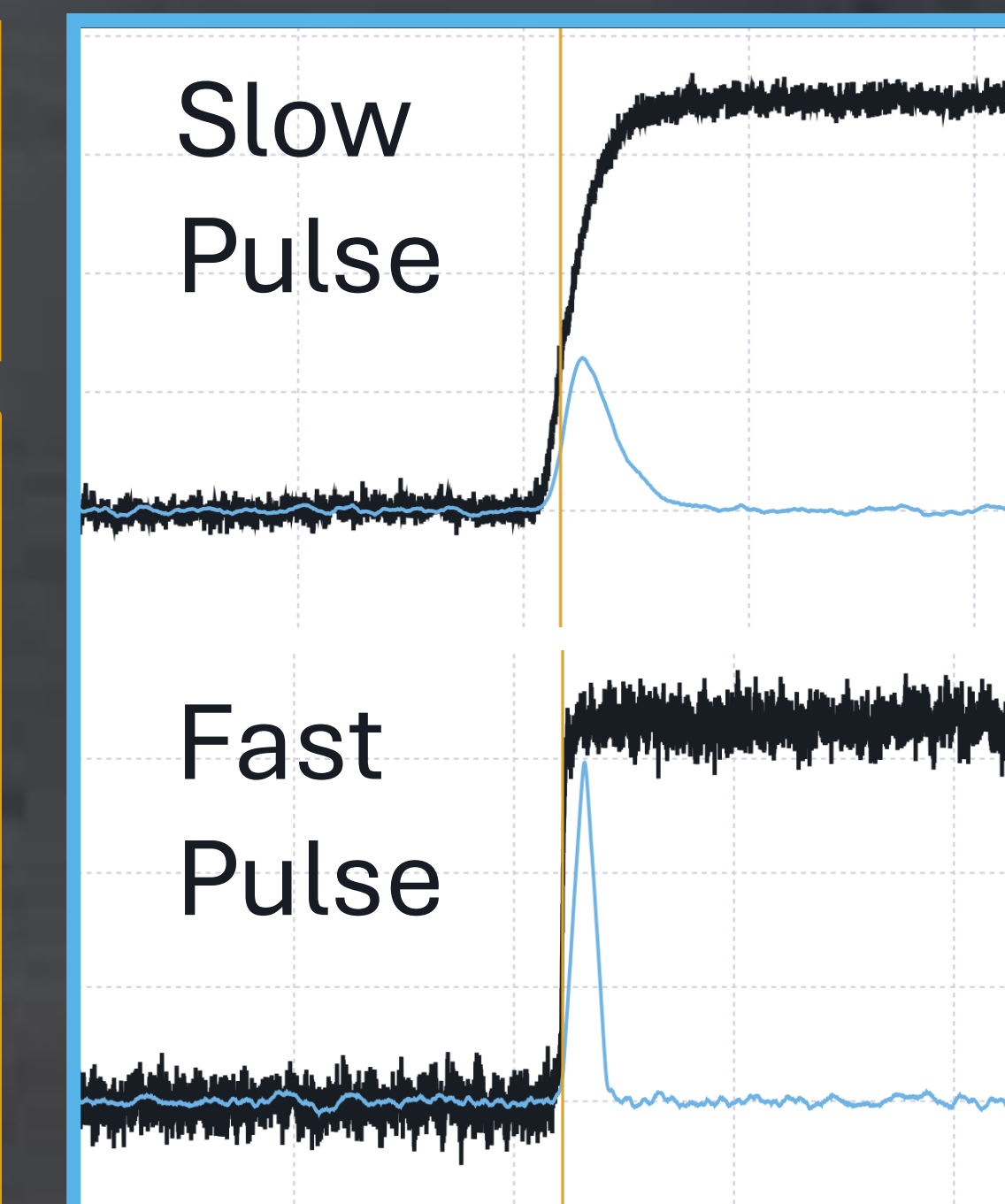
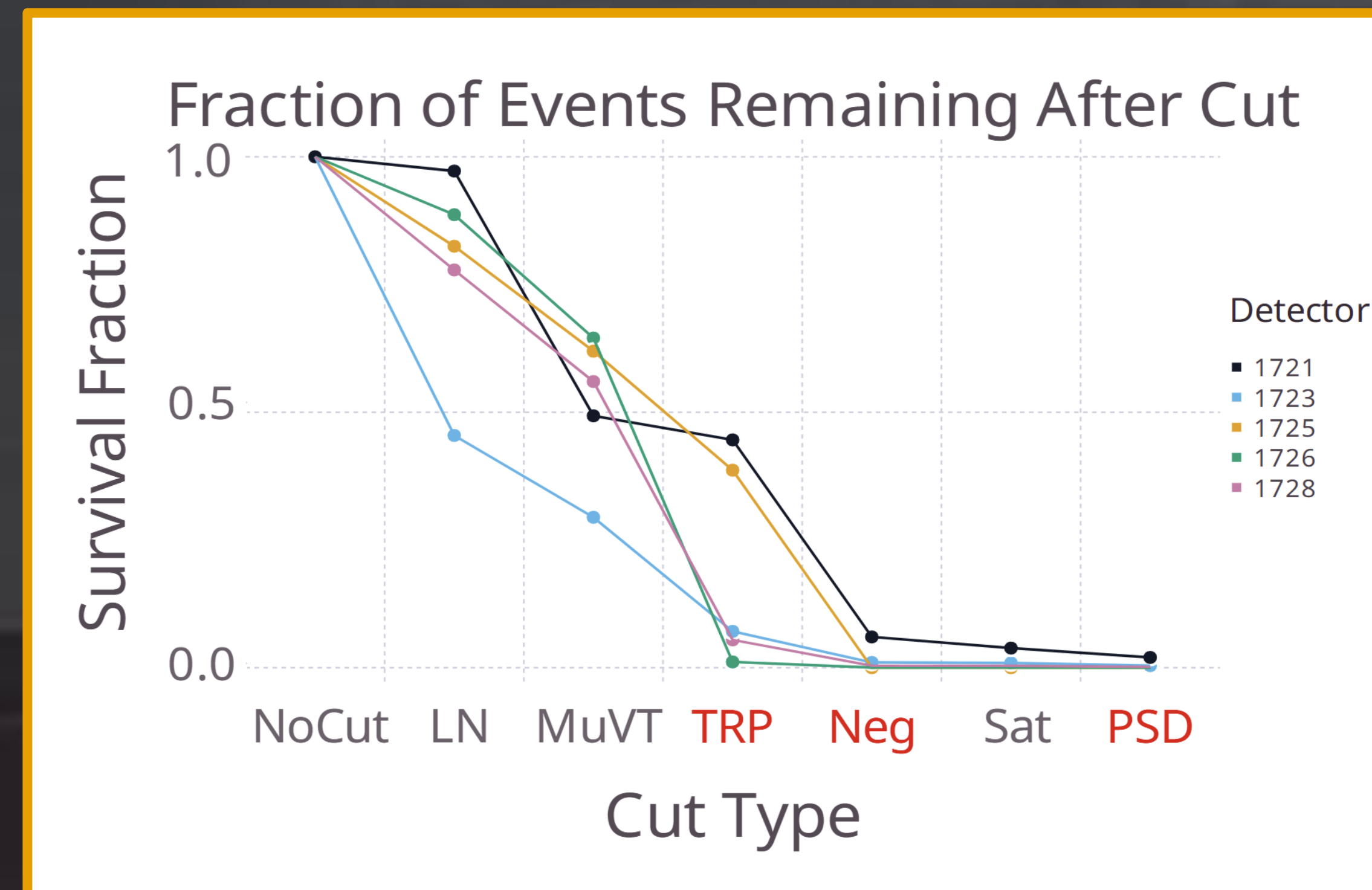
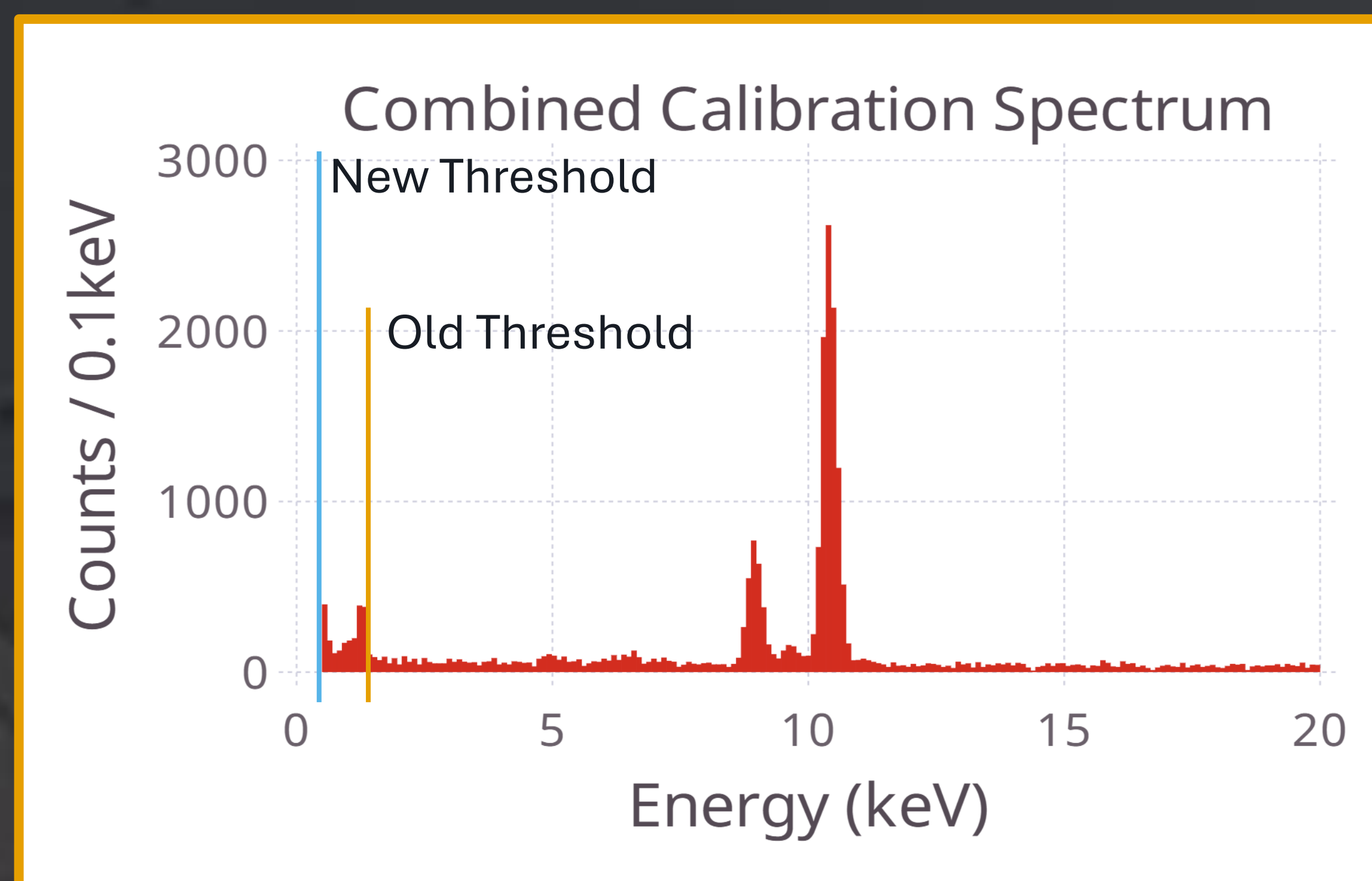
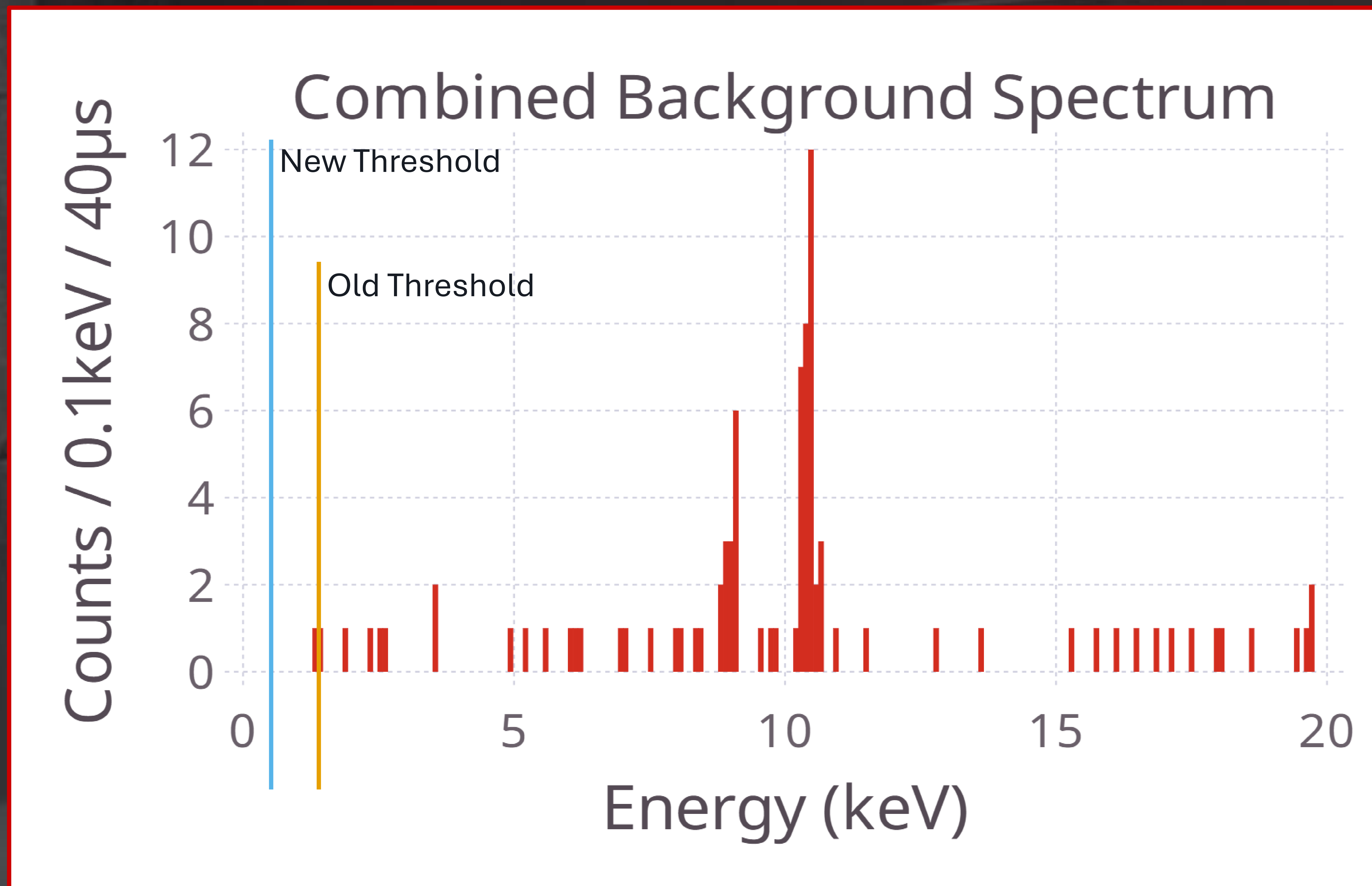
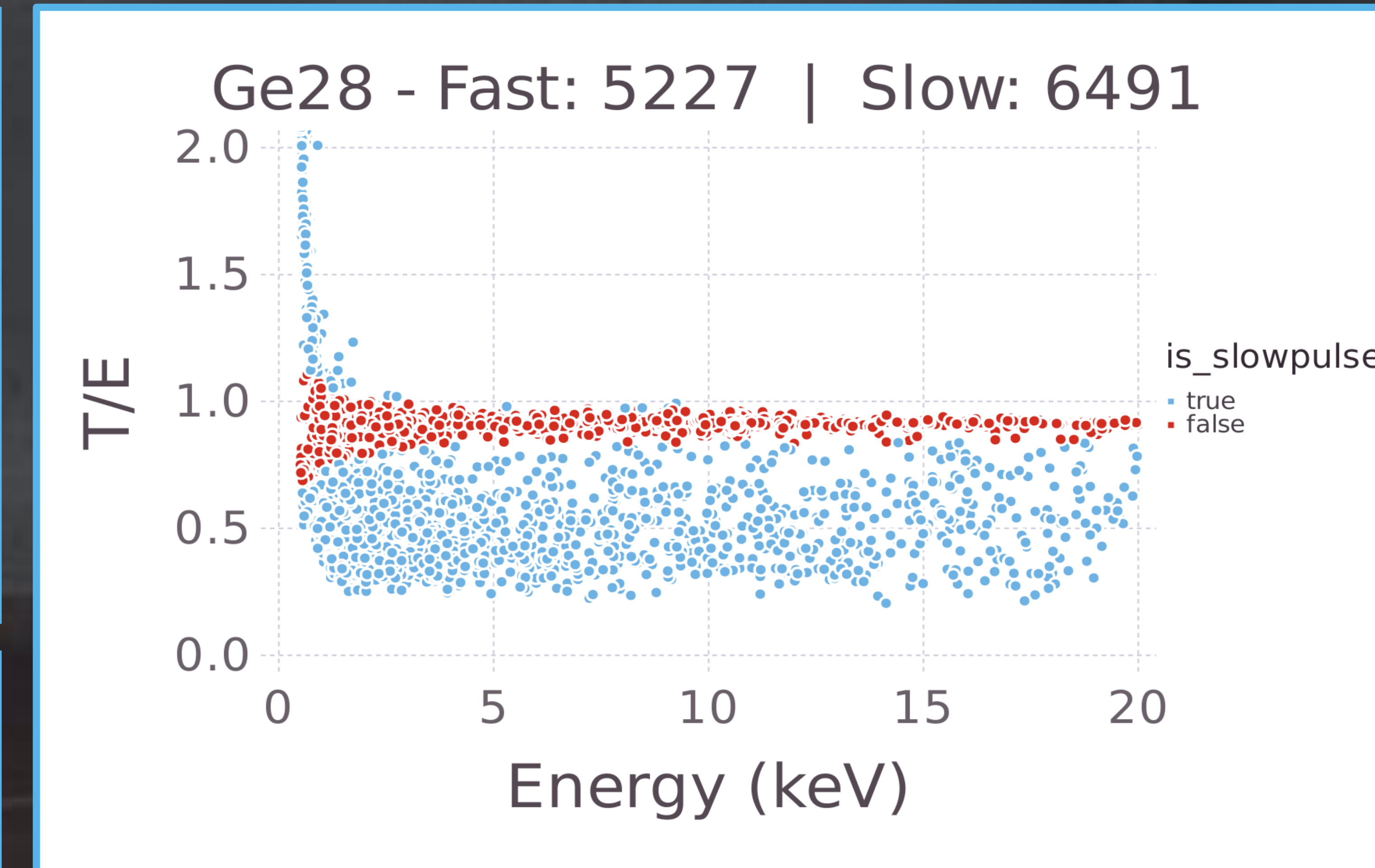


Germanium CEvNS Reanalysis

Calibration data is collected by setting the data acquisition system to trigger on internal energy thresholds rather than the external timing signal from the Spallation Neutron Source (SNS). This internally triggered data observes three energy peaks at 10.3keV, 8.5keV, and 1.3keV which can be used for energy calibration; an improvement on the two energy peaks observed and used in the previous analysis. Red cut types are new.



Pulse Shape Discrimination allows for low energy backgrounds from events on the surface of the detector to be efficiently removed.



A new waveform filter allows for a lower energy threshold and better timing reconstruction of COHERENT's germanium CEvNS data, in line with our recent pre-print. We use an analysis parameter T/E which divides the height of the new "matched" filter (T) by a longer trapezoidal filter which reconstructs the energy of the pulse (E) to separate fast and slow pulses. The new analysis threshold is 0.5keV, and the matched filter has a $1\mu s$ error in timing reconstruction at 0.5keV.

