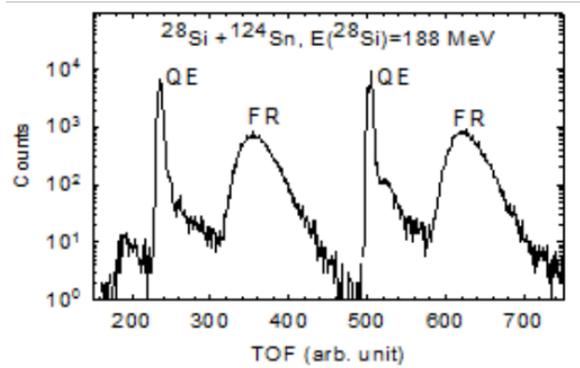


Segmented annular PPAC to tag fusion residues by time of flight

An annular PPAC has been developed to handle the high count rate at forward angles while separating the quasi elastic (QE) events and the fusion residue (FR) events by time of flight measurements. A transparent mylar window is supported by a stainless steel frame and a thin aluminized mylar cathode with its supporting frame. The anode consisting of a double sided PCB is segmented into 12 parts comprising 4 sectors and 3 rings with varying widths which provides (θ, Φ) information of FRs. The PPAC is integrated with a thin wall chamber in the 45 deg. beam line in Hall-1 of the PLF along with a 38-element BGO multiplicity setup. A typical TOF spectrum obtained by one of the segments of PPAC in coincidence with the BGO array, as shown in figure below, demonstrates a clear separation of FR from QE events. The FR tagging efficiency of the PPAC has been found to be $\sim 25\%$ in the $^{124}\text{Sn} + ^{28}\text{Si}$ reaction at 188 MeV.



Segmented annular PPAC



TOF spectra showing quasi-elastic & fusion residues