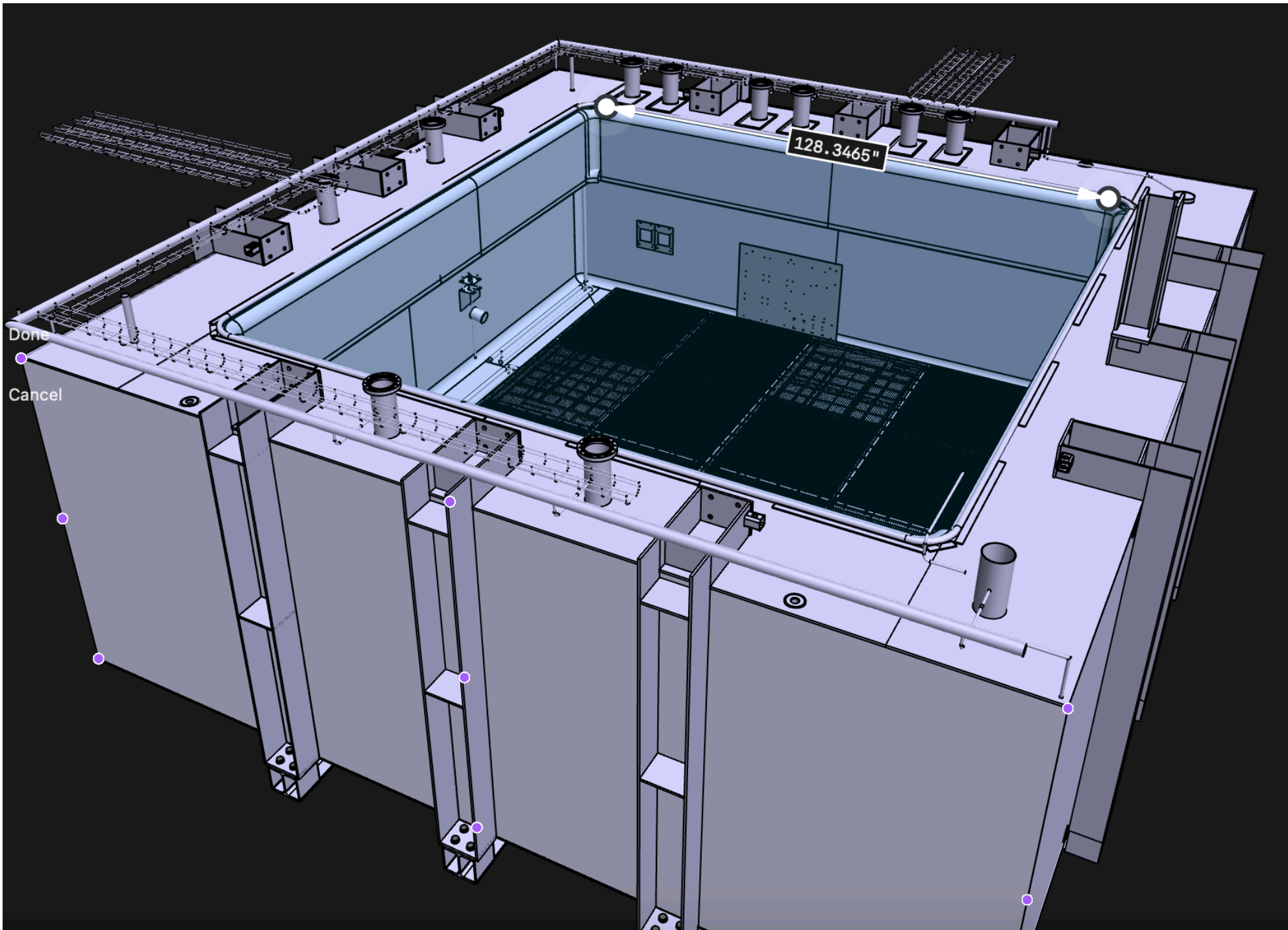


Light Simulation Status for PNS Run in VD ColdBox

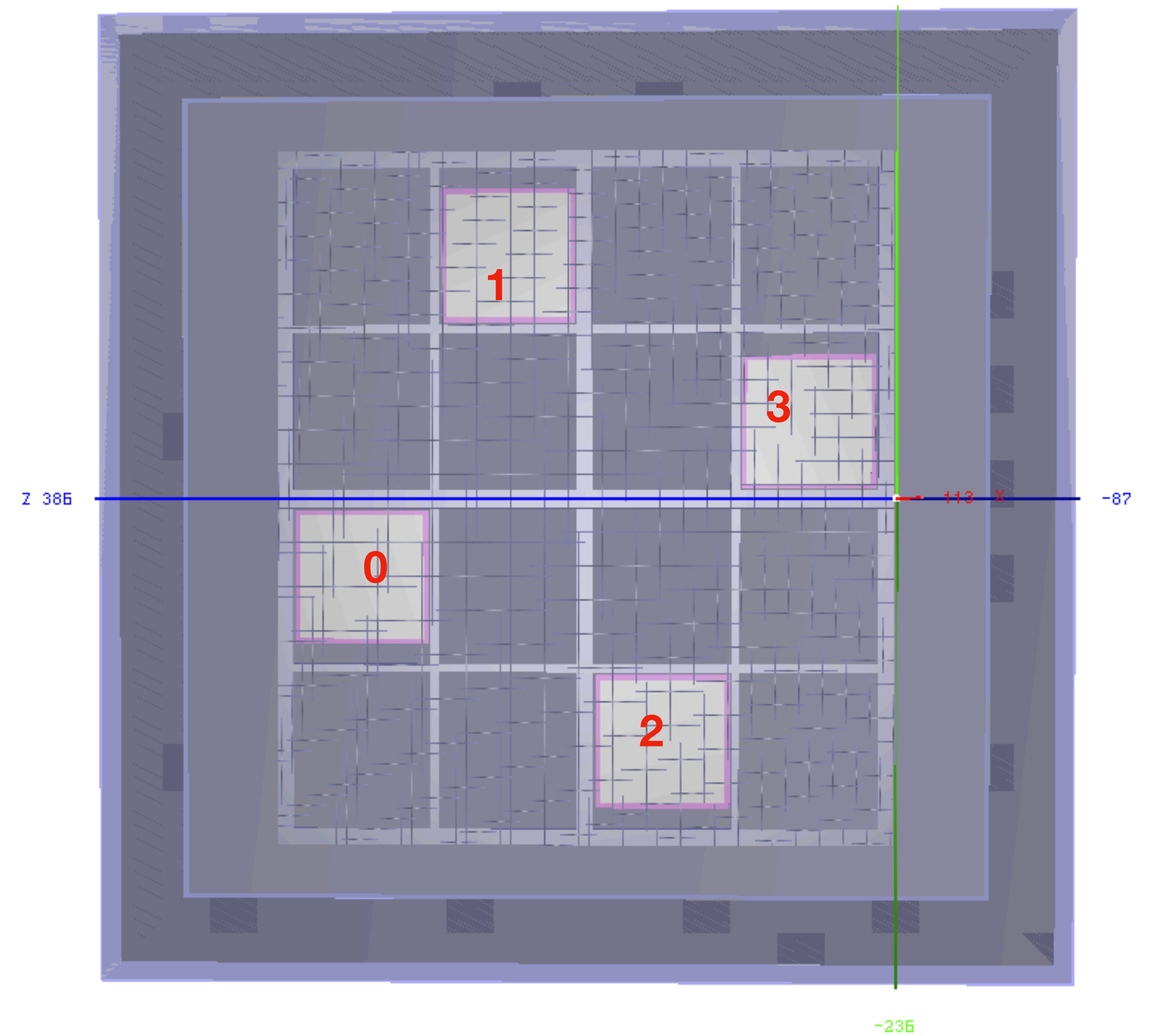
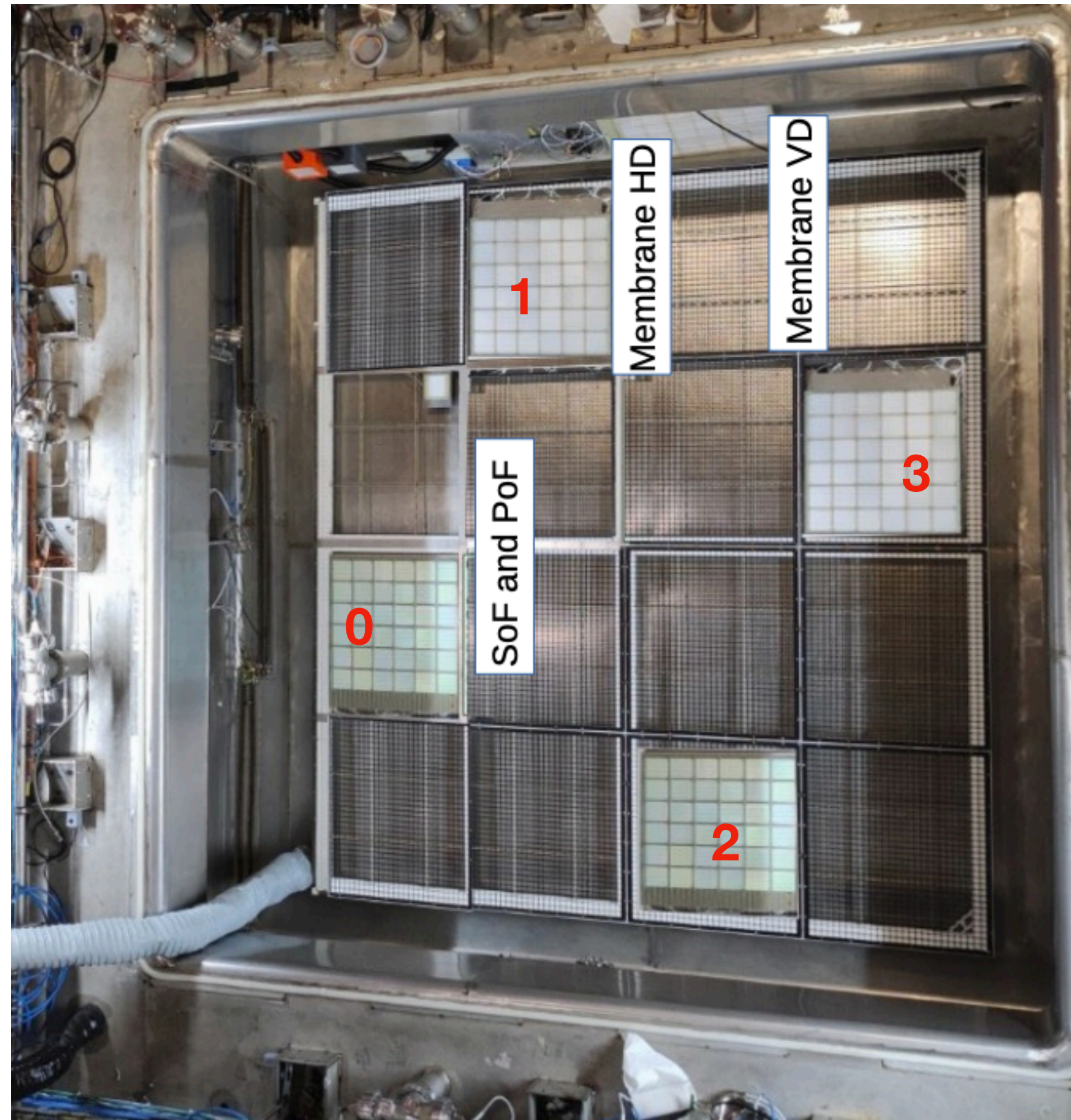
Wei

On behalf of the neutron capture for PDS calibration team



VD ColdBox Geometry

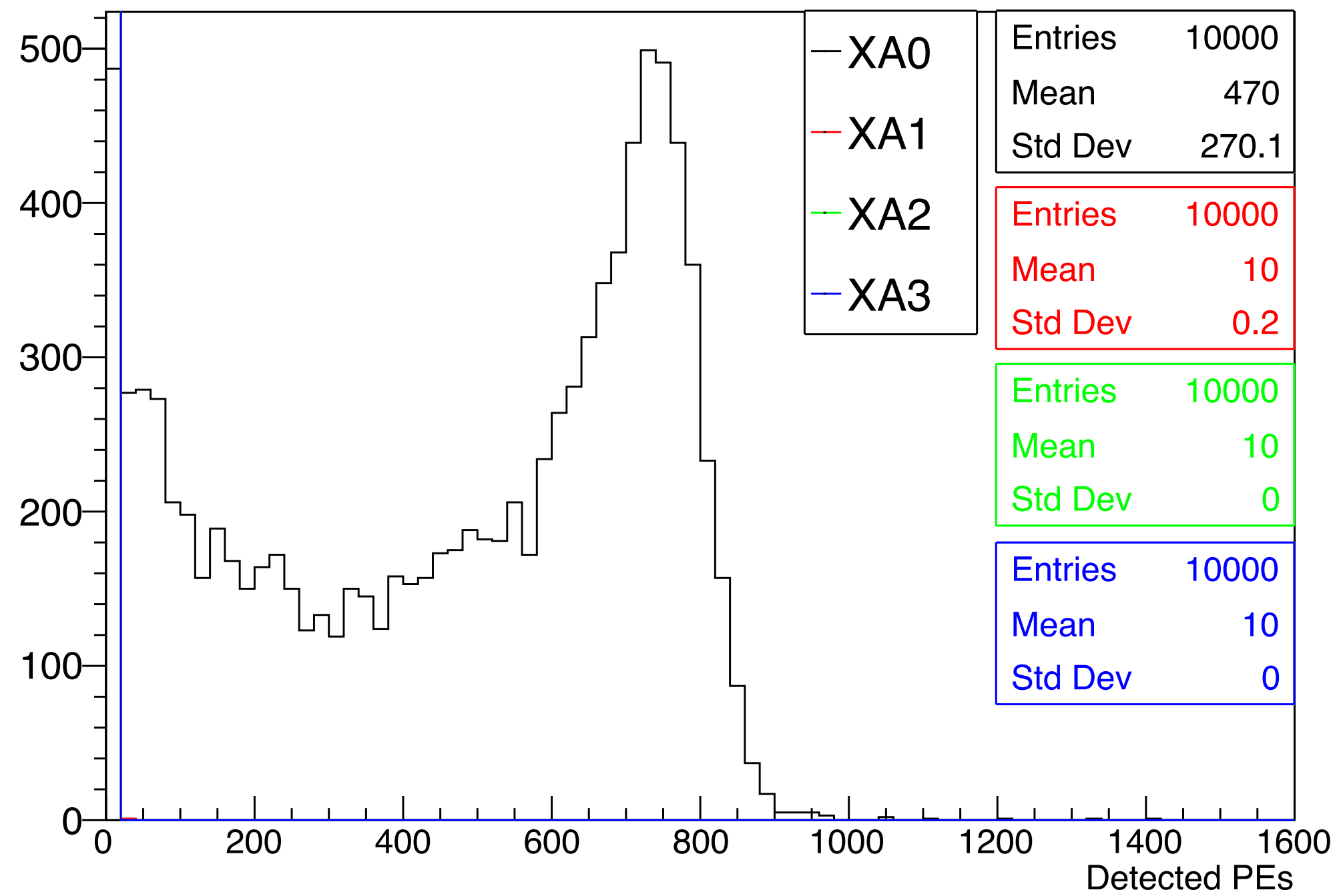
Optical Channels positions: 4			
0	-15.387	-38	257.901
1	-15.387	118	186.701
2	-15.387	-118	111.701
3	-15.387	37.2	40.9009



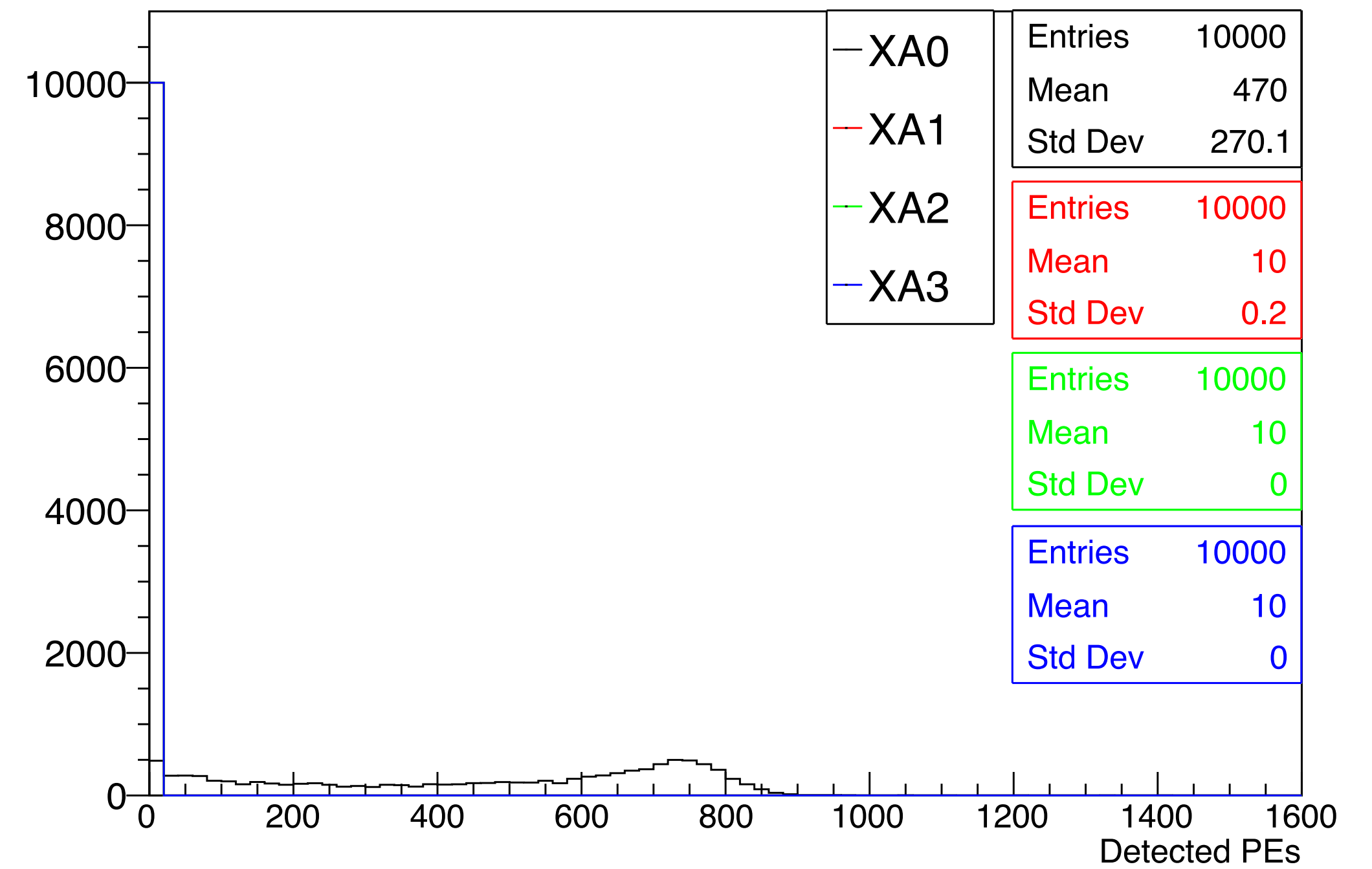
- Outstanding items:
 - Wall XAs: light collection area is half of nominal XA
 - CRP?
 - Foam between cryostat and outside steel support: density **0.035g/cm³**, confirmed by Ajib/Filippo

4.7MeV γ right on top of XA0

Generated at the center of XA0 and ~15 cm above
 $x=0, y=-38, z=257.9$ (cm)



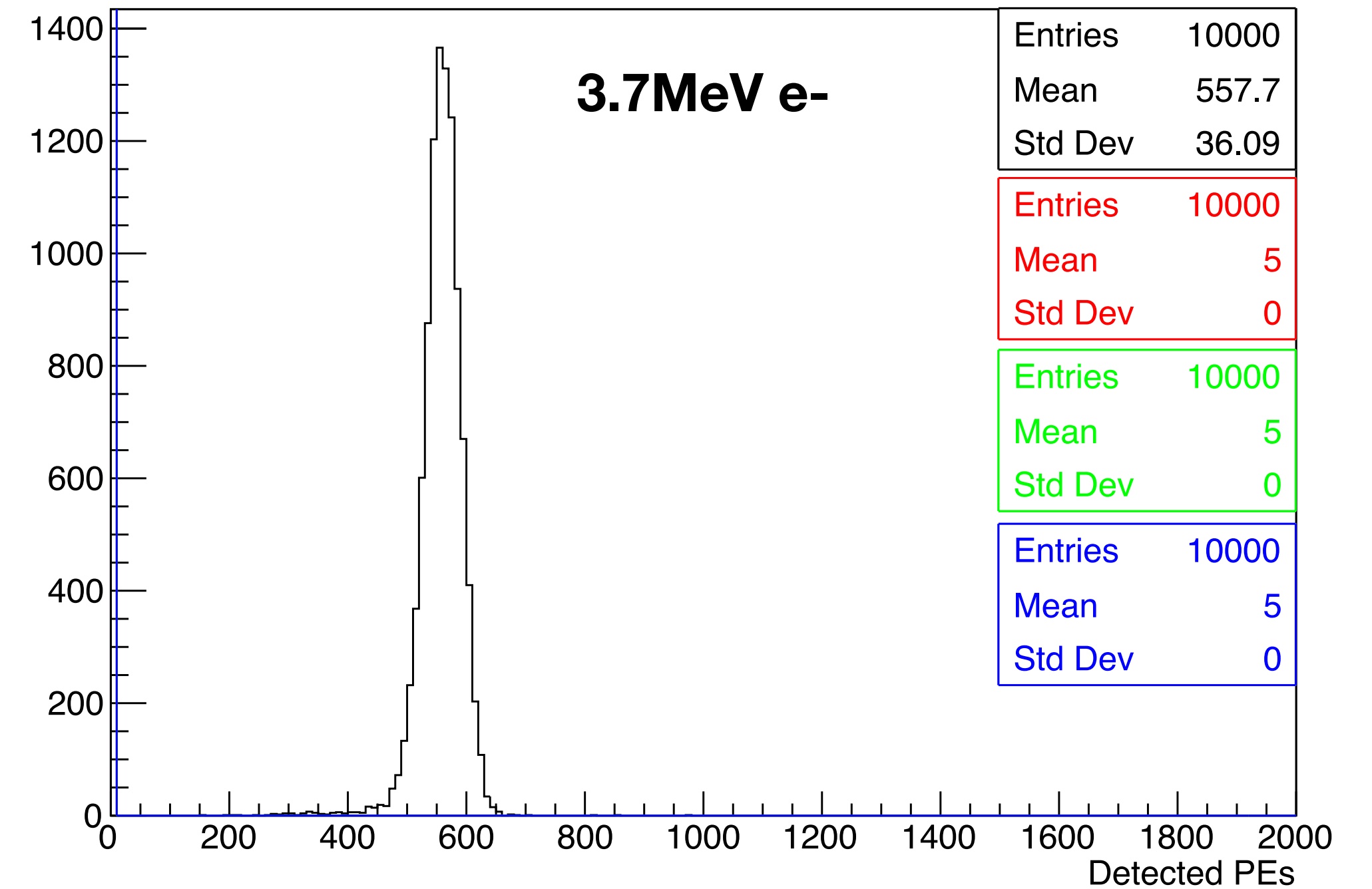
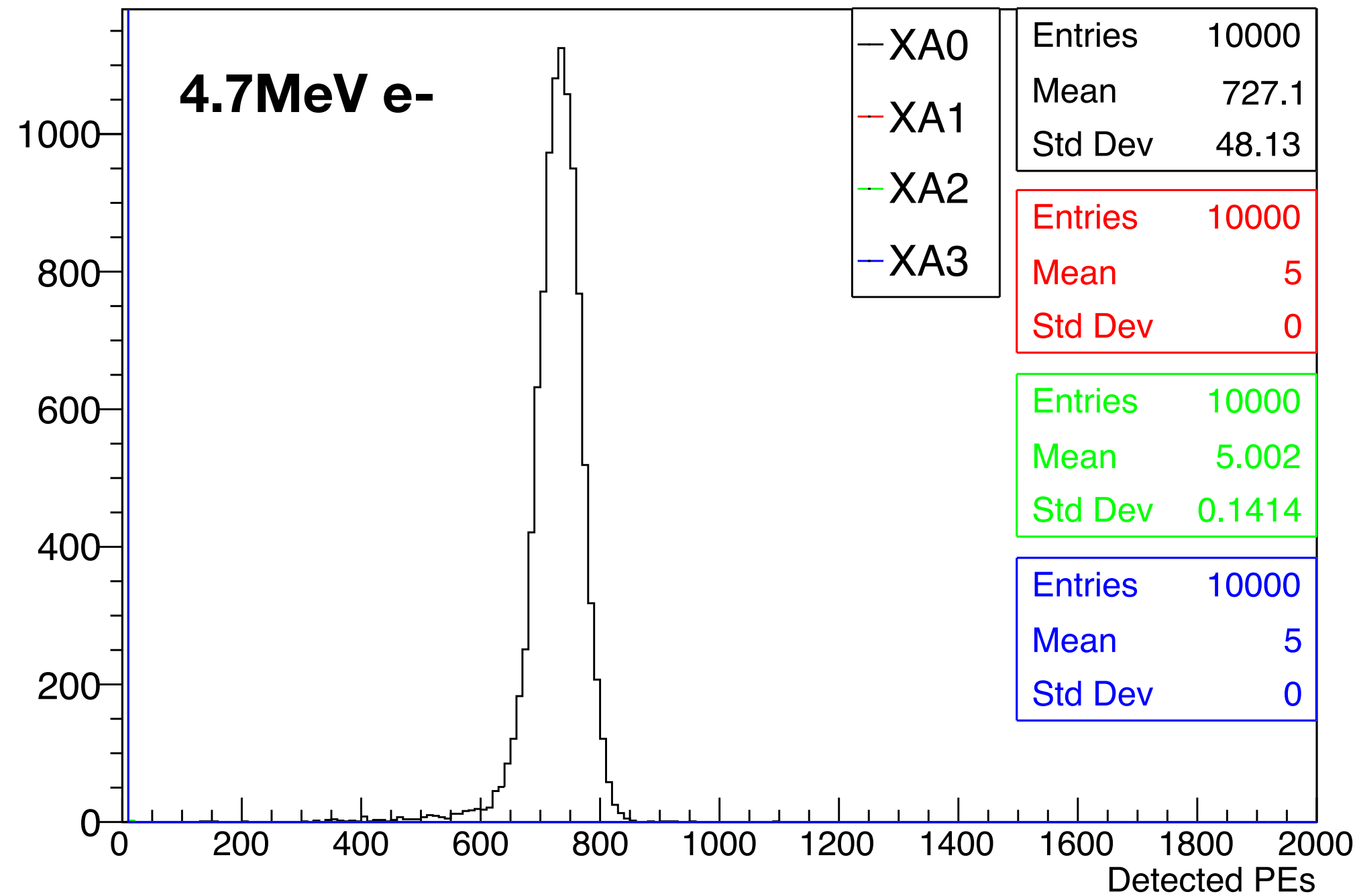
Zoom out
→



e^- right on top of XA0

4.7MeV is the **max** KE e^- or e^+ could get from a 4.7MeV gamma pair production
 3.7MeV is the **min(?)** KE e^- or e^+ could get from a 4.7MeV gamma pair production

Generated at the center of XA0 and ~15 cm above
 $x=0, y=-38, z=257.9$ (cm)



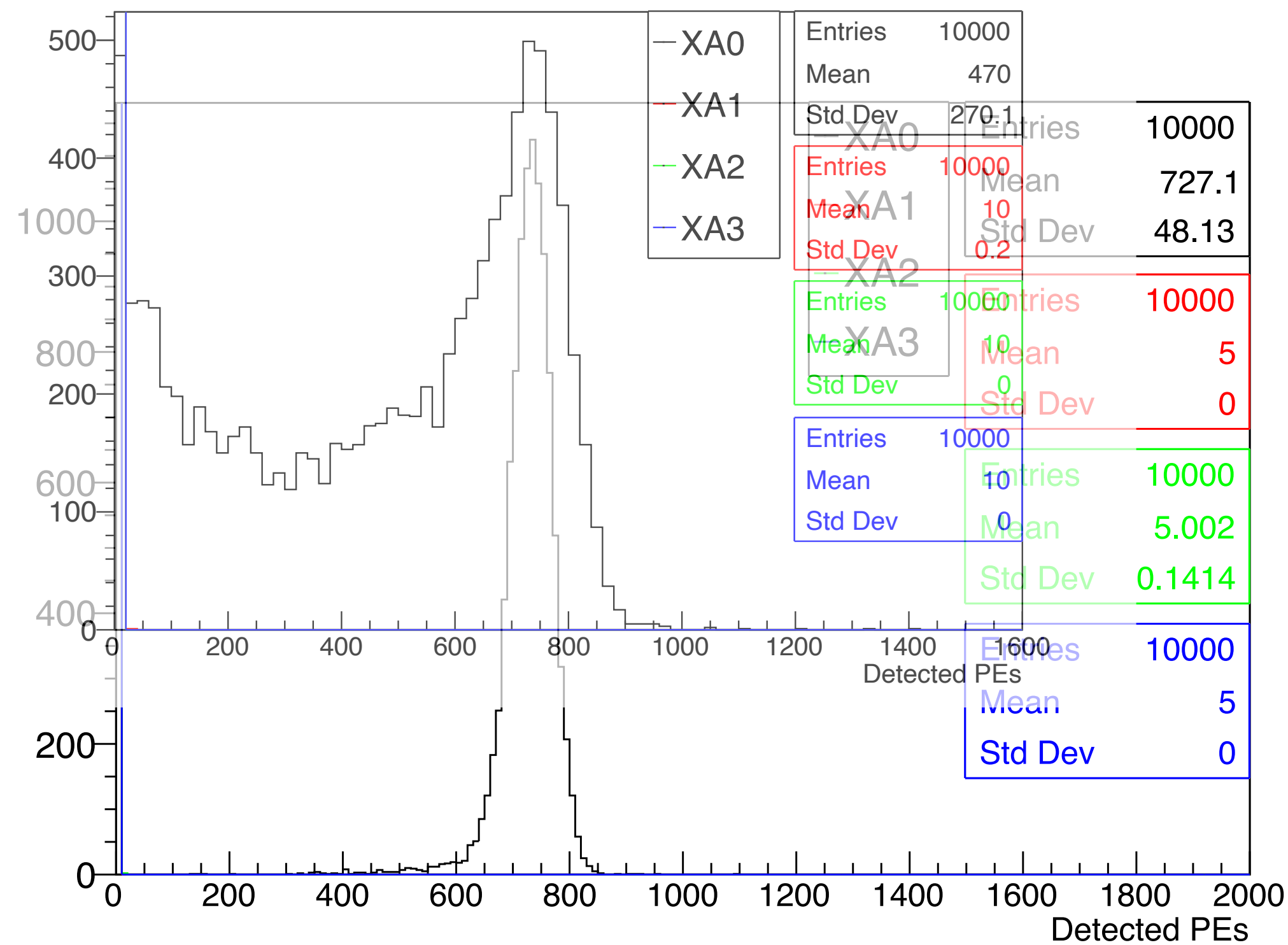
Trigger based on detected PE any time:

XA_i/XA_j ratio > 20 ($i \neq j, i,j=1,2,3,4$)

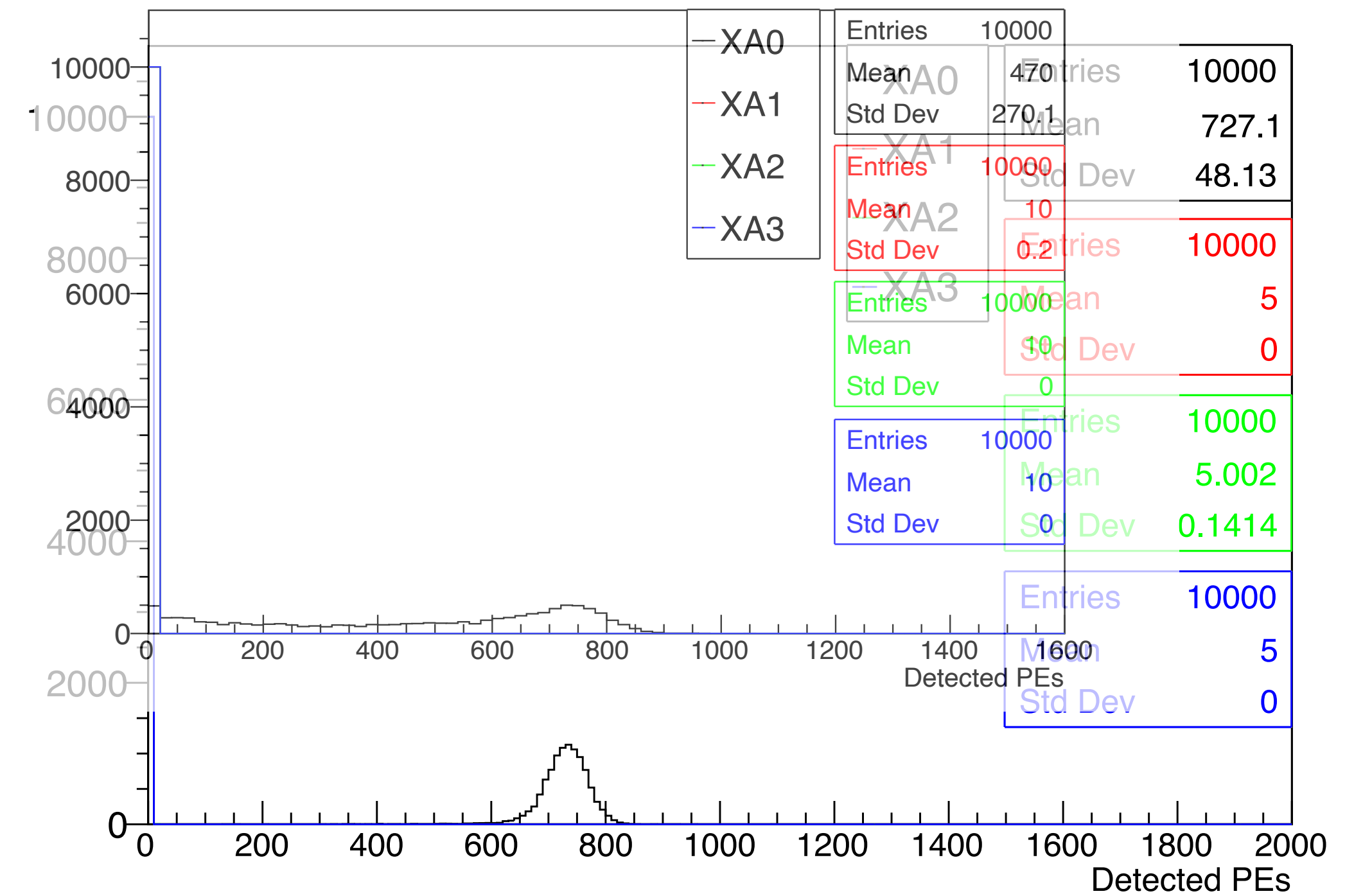
Because we are not sure what's the absolute signal amplitude

4.7MeV e^- and 4.7MeV γ : both right on top of XA0

Generated at the center of XA0 and ~15 cm above
 $x=0, y=-38, z=257.9$ (cm)



Zoom out



Unique peak is promising to help select 4.7MeV gamma pair production events