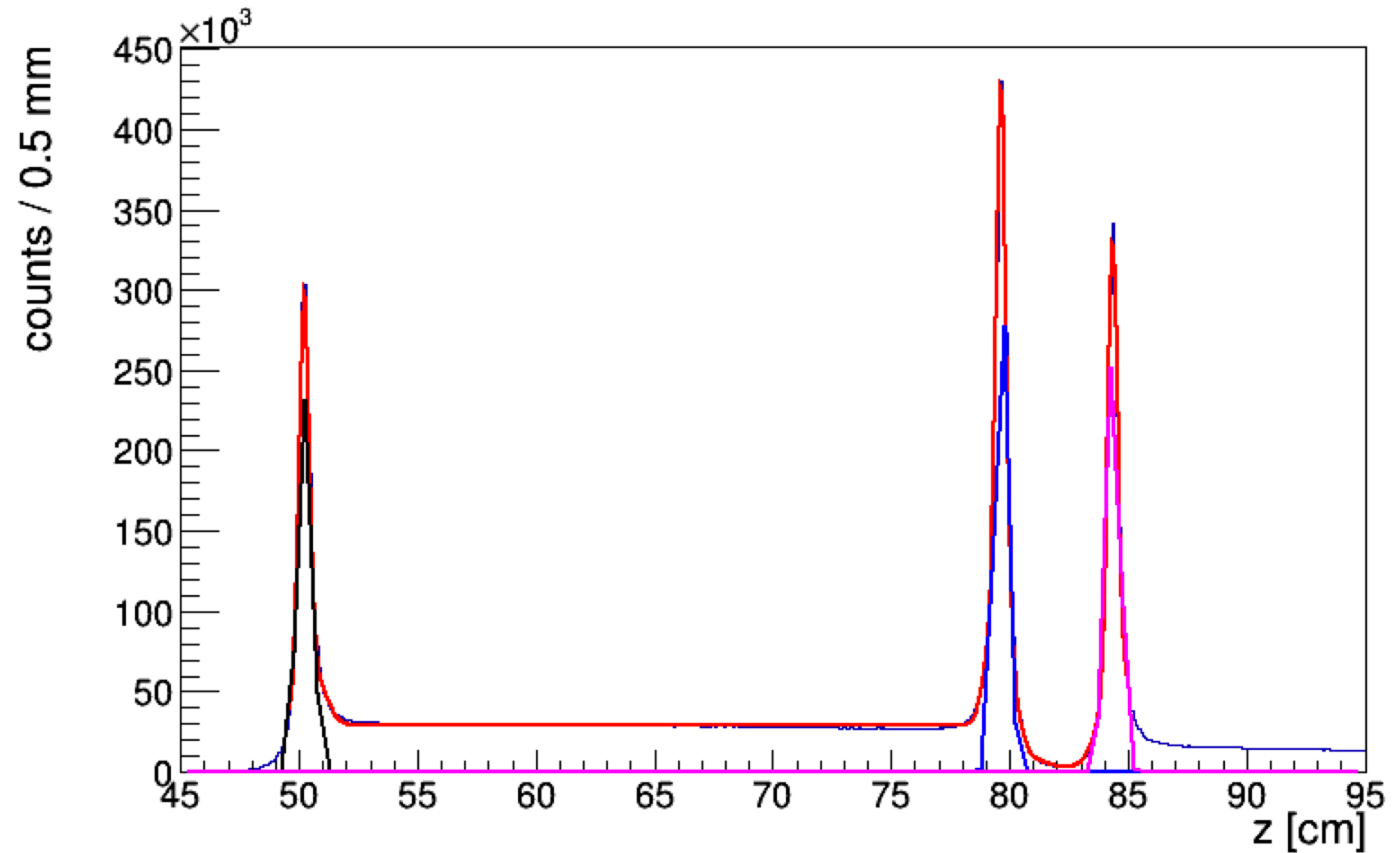


# Empty target analysis

- Spring 2017 empty target data
- Fit yield of 2-track vertices and extract contributions from windows
- Ratio of yields between gas and windows matches areal density?



	Position (cm)	Density (g/cm <sup>3</sup> )	Length (cm)	Area density (g/cm <sup>2</sup> )	2-track yield
LH <sub>2</sub> gas	50-79.5	0.0015	29.5	0.04425	8.58x10 <sup>6</sup>
Kapton 1	50	1.42	75x10 <sup>-4</sup>	0.011	1.79x10 <sup>6</sup>
Kapton 2	79.5	1.42	75x10 <sup>-4</sup>	0.011	2.19x10 <sup>6</sup>
Aluminum	84.5	2.7	25x10 <sup>-4</sup>	0.007	1.96x10 <sup>6</sup>

# Rough scaling of empty target rate

- Empty target run 30728 had a trigger rate of 7 kHz
- Scale factors for getting to GDH conditions
  - Target density:  $10 \text{ cm butanol} / 75 \text{ um Kapton} = 620$
  - Current x RL:  $240 \text{ nA} \times 1.9\text{e-}5 \text{ RL} / 100 \text{ nA} \times 4\text{e-}4 \text{ RL diamond} = 0.11$
  - Fraction of events from Kapton 1 window in run 30728:  $\sim 0.1$
- Total scale factor =  $620 * 0.11 * 0.1 = 6.82$
- Scaled rate for GDH from run 30728:  $7 \text{ kHz} * 6.82 = \sim 50 \text{ kHz}$ 
  - Below DAQ rate limit and in the ballpark of the estimation from simulation