t-shift check

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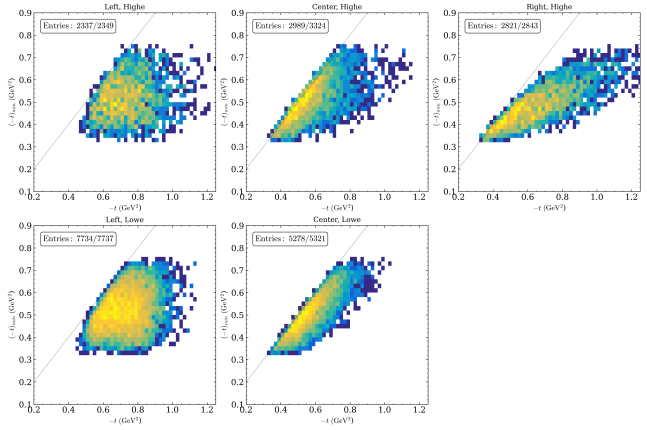
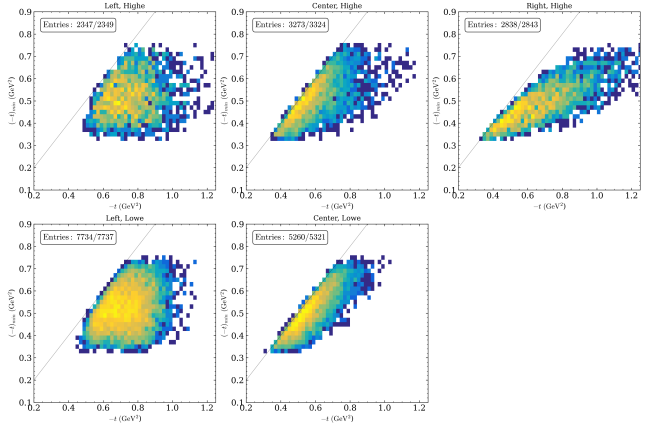
Kaon LT Meeting
April 2, 2026

$-t$ vs $(-t)_{\min}$ before t-shift $Q^2 = 4.4, W = 2.74$



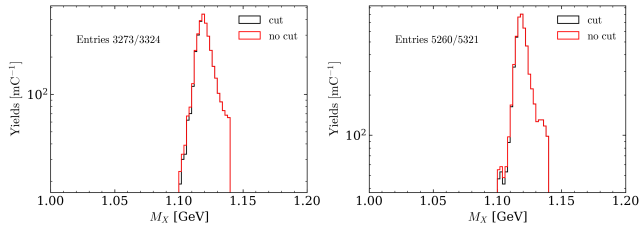
- Most unphysical events found in center settings $\rightarrow$ consistent with the fact that I see fat peak in center settings

$-t$ vs $(-t)_{\min}$ after t-shift $Q^2 = 4.4, W = 2.74$



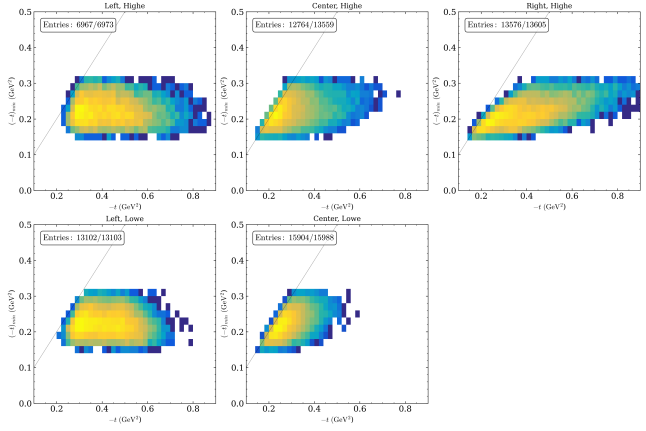
- Most unphysical events found in center settings → consistent with the fact that I see fat peak in center settings
- t shift removes most unphysical events

M_X after t-shift $Q^2 = 4.4, W = 2.74$



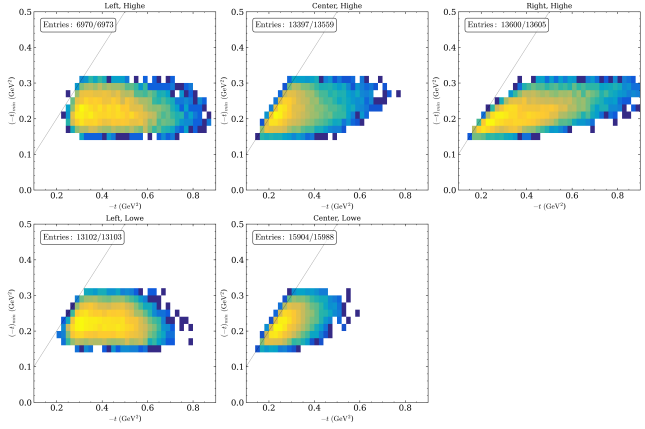
- cut on $t_{\min}$ trims the left side as expected
- does not explain the resolution

$-t$ vs $(-t)_{\min}$ before t-shift $Q^2 = 3.0, W = 3.14$



- Similar to the previous case, most unphysical events found in center settings

$-t$ vs $(-t)_{\min}$ after t-shift $Q^2 = 3.0, W = 3.14$



- Similar to the previous case, most unphysical events found in center settings
- unphysical events remain after t shift

Running iteration

- [x] remove events with $-t < (-t)_{\min}$

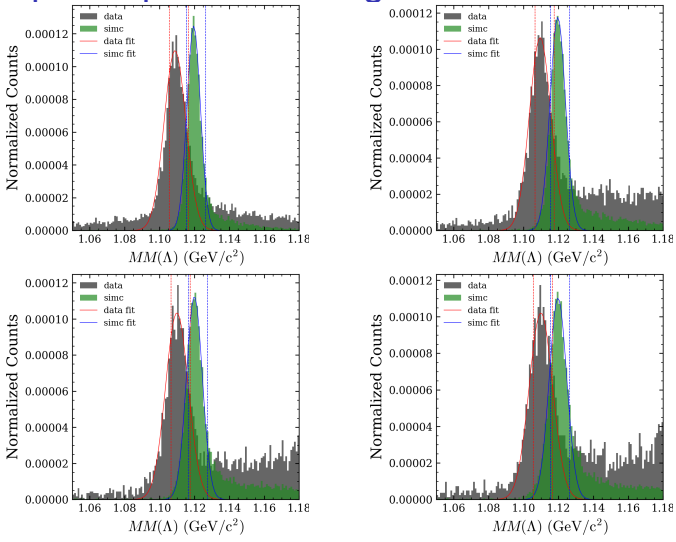
Radiative correction systematic study

no external bremsstrahlung

Mo-Tsai : linear approximation $\Phi_i^{\text{ext}} = 1 - \dfrac{bt_i}{bt_i + \lambda_i} \dfrac{E_i}{|k_i|}$

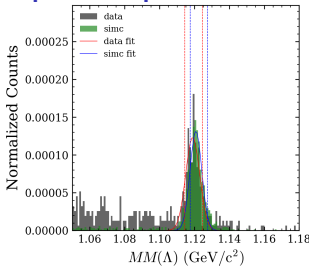
higher order effects

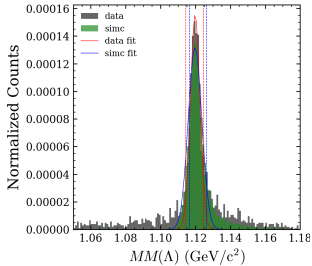
Q3p0 W3p14 center highe

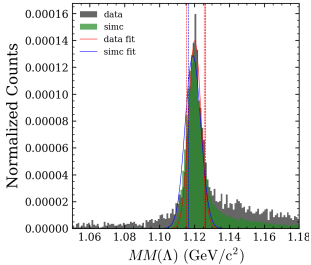


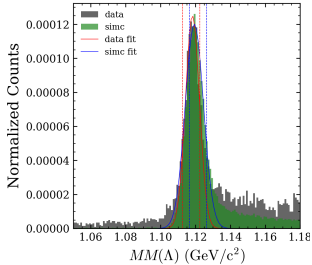
$t_{\min}$	$t_{\max}$	shift (MeV)	tShift
0.21	0.27	11.011	-0.009
0.27	0.30	10.010	-0.008
0.30	0.35	10.010	-0.008
0.35	0.44	10.010	-0.008

Q3p0 W3p14 left lowe



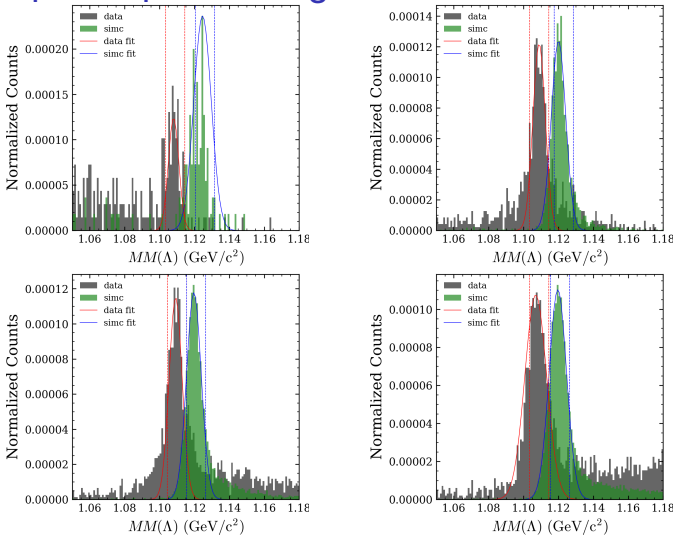






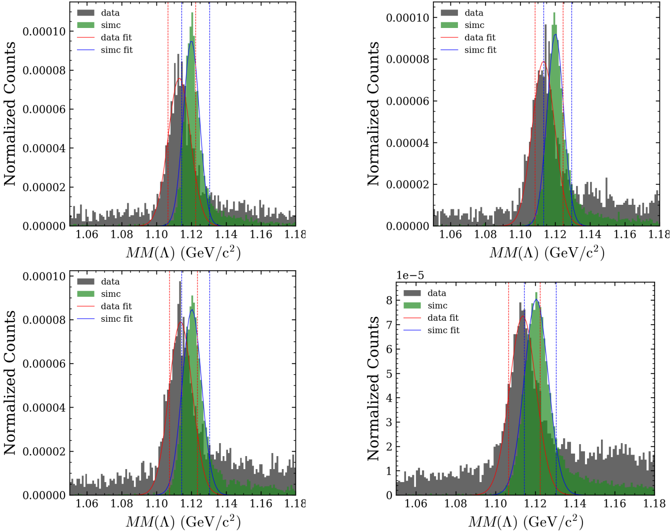
$t_{\min}$	$t_{\max}$	shift (MeV)	tShift
0.21	0.27	2.002	-0.002
0.27	0.30	0.000	0.000
0.30	0.35	-2.002	0.002
0.35	0.44	1.001	-0.001

Q3p0 W3p14 left highe



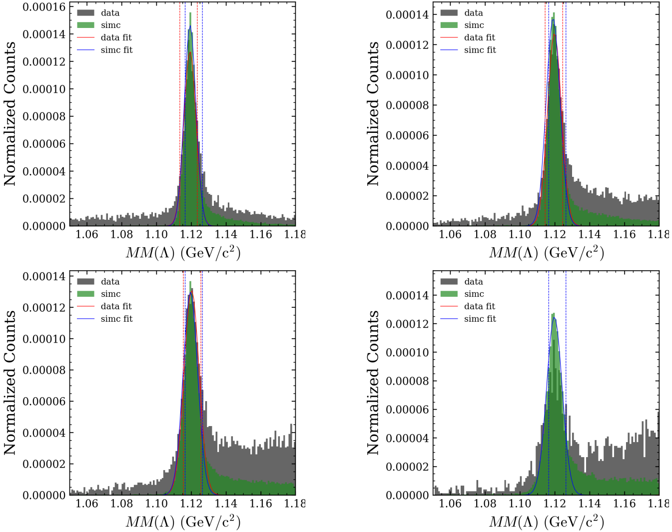
$t_{\min}$	$t_{\max}$	shift (MeV)	tShift
0.21	0.27	17.017	-0.013
0.27	0.30	11.011	-0.008
0.30	0.35	10.010	-0.008
0.35	0.44	13.013	-0.010

Q3p0 W3p14 right highe



t_{min}	t_{max}	shift (MeV)	tShift
0.21	0.27	7.007	-0.005
0.27	0.30	7.007	-0.005
0.30	0.35	7.007	-0.005
0.35	0.44	7.007	-0.005

Q3p0 W3p14 center lowe

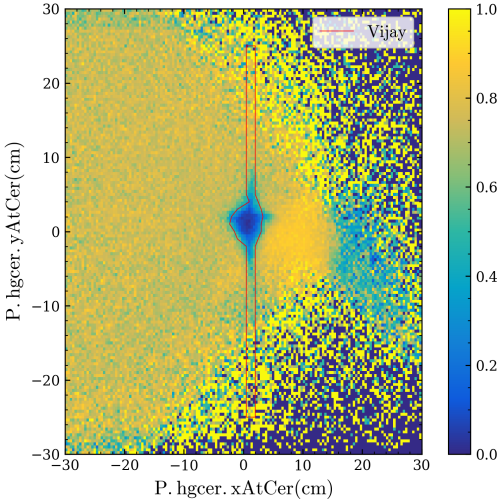


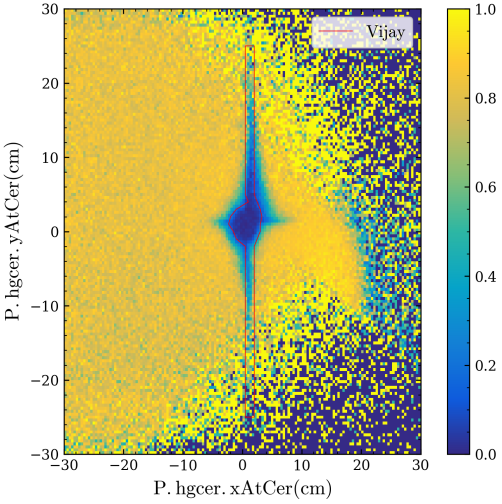
t_{min}	t_{max}	shift (MeV)	tShift
0.21	0.27	0.000	0.000
0.27	0.30	-1.001	0.001
0.30	0.35	-1.001	0.001
0.35	0.44	-76.076	0.064

HGcer hole

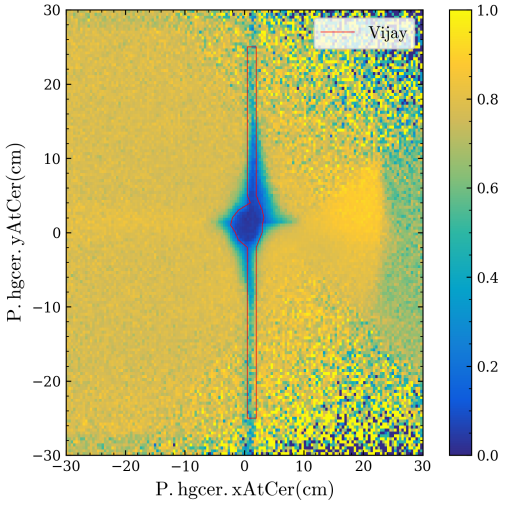
$$\mathrm{p_p icut_e ff_n o_h gcer} = \mathrm{pid.p_p icut} + \mathrm{coin_t ime.Coin_P ion_P rompt} - \mathrm{pid.p_p icut.P_h gcer_n peSum}$$
$$\mathrm{p_p icut_e ff} = \mathrm{pid.p_p icut} + \mathrm{coin_t ime.Coin_P ion_P rompt}$$

Q3p0 , W3p14, left

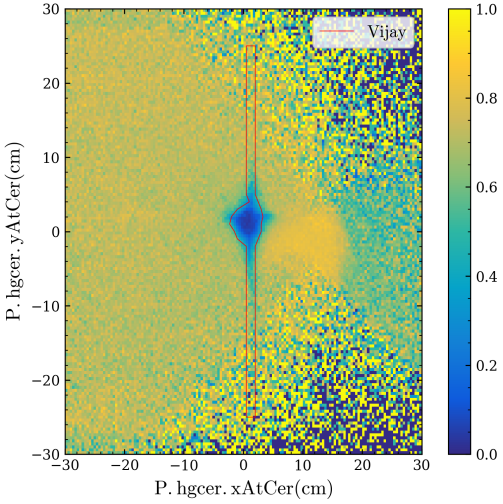


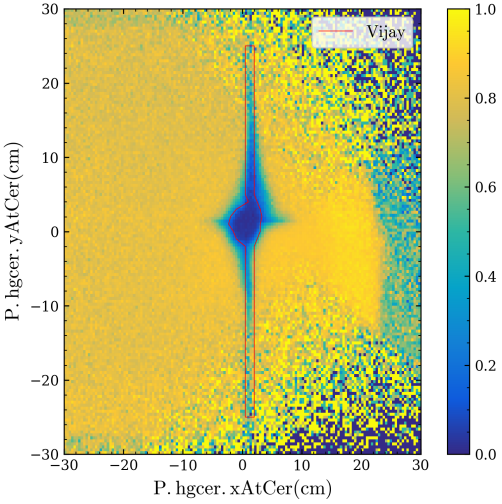


Q3p0 , W3p14, right



Q3p0 , W3p14, center





To do

check hole for other settings

Lt sep using the fresh replay