University of Regina

Cross Section Checks
- Before systematics -

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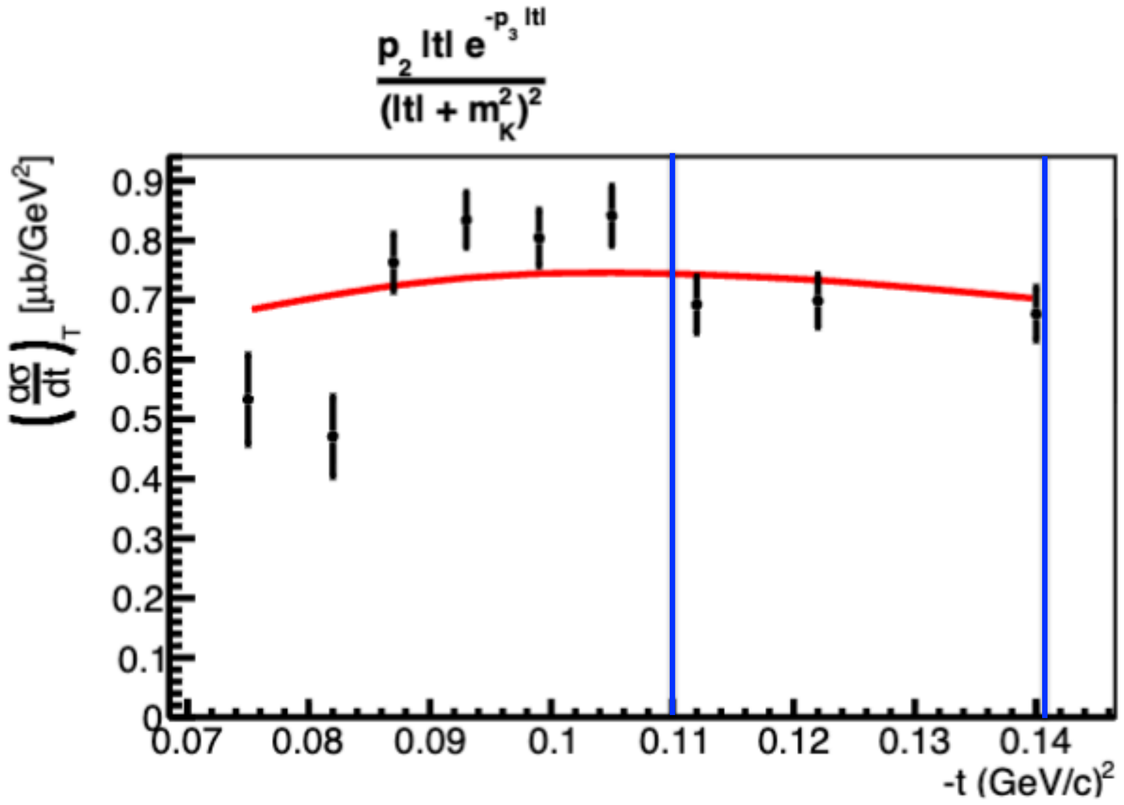
KaonLT Meeting
2026/03/12

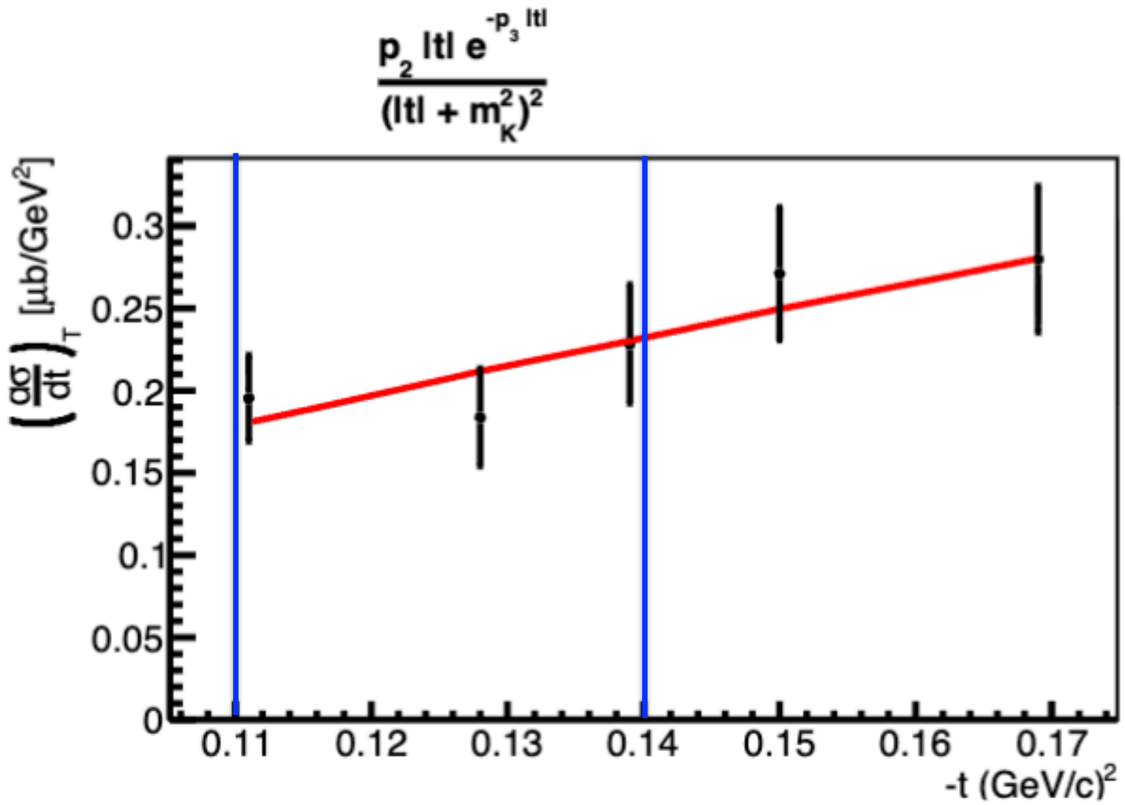
$$\frac{\sigma_T(\gamma^* p \rightarrow K^+\Sigma^0)}{\sigma_T(\gamma^* p \rightarrow K^+\Lambda)}$$

Transverse Cross Section Overlap Region

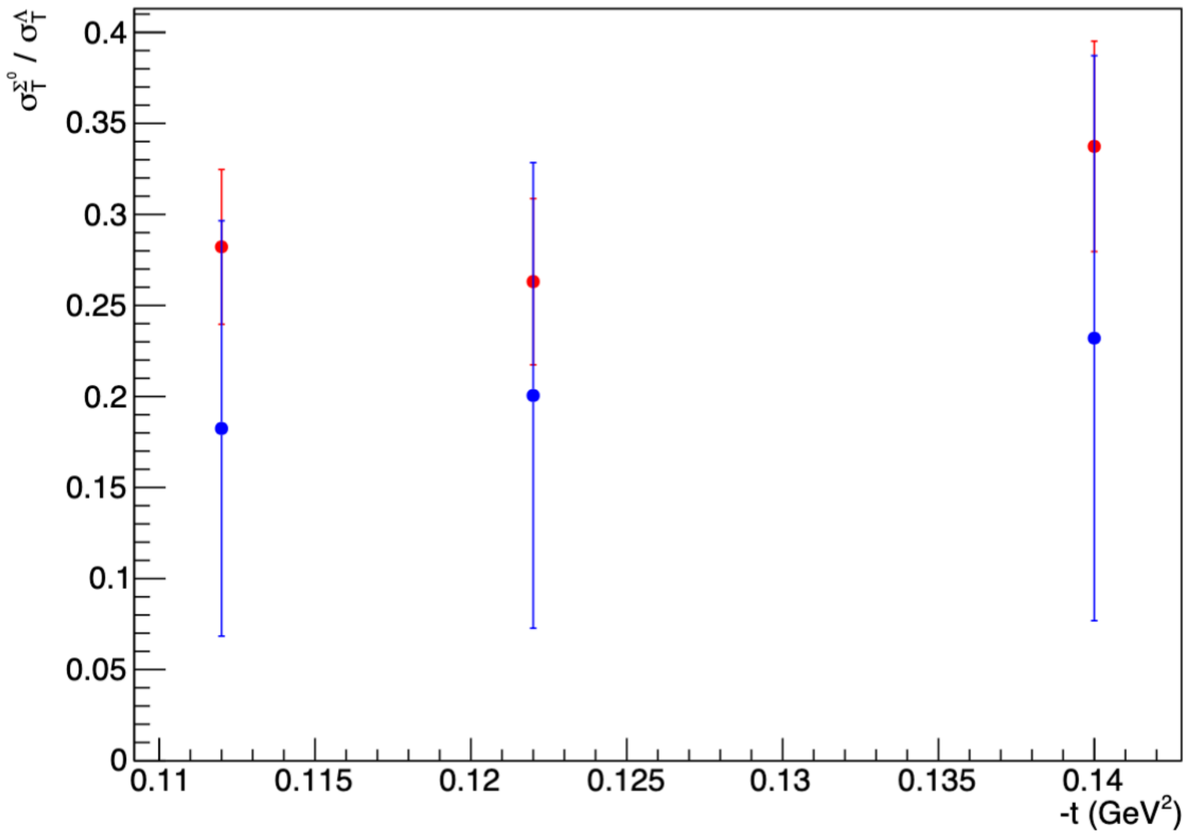
$p(e, e'K^+)\Lambda$



$p(e, e'K^+)\Sigma^0$



Transverse Cross Section ratio (Σ^0/Λ)



tc_lambda,	Q2_lambda,	W_lambda,	T_lambda,	T_err_lambda,
0.112,	0.5151,	2.3937,	0.6921,	0.0473,
0.122,	0.5145,	2.3932,	0.6987,	0.0442,
0.14 ,	0.5143,	2.3962,	0.677 ,	0.0447,

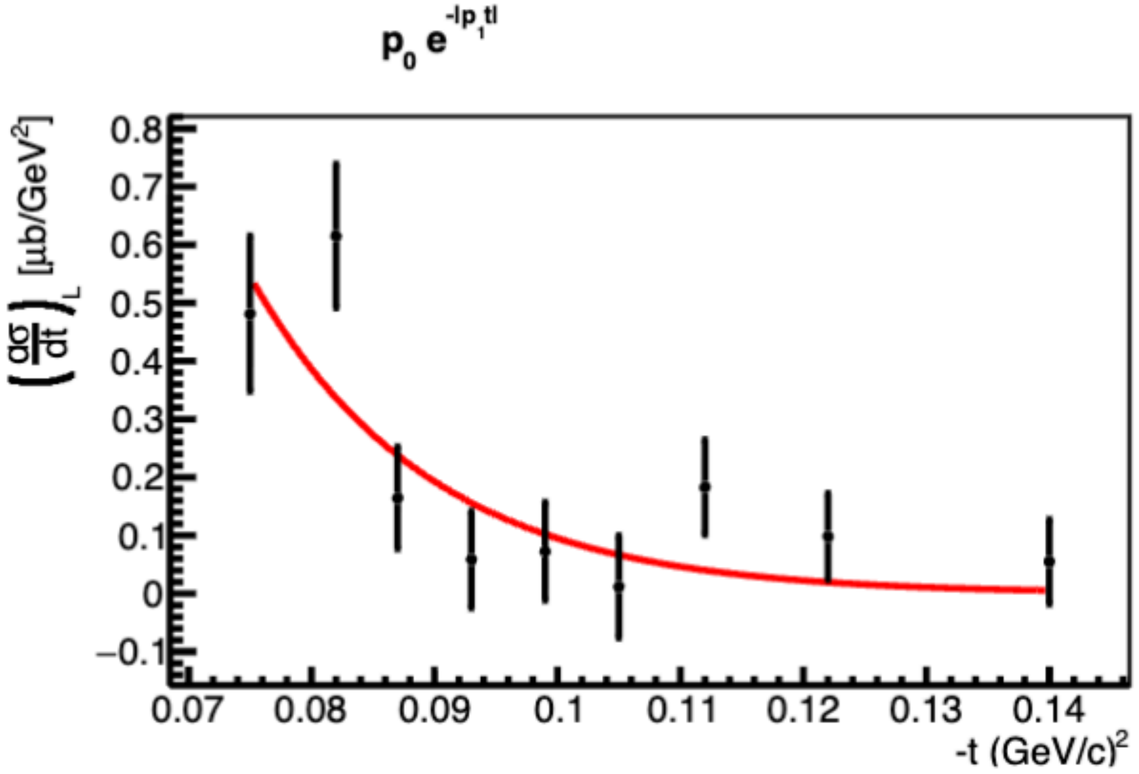
tc_sigma,	Q2_sigma,	W_sigma,	T_sigma,	T_err_sigma,
0.111,	0.4651,	2.4147,	0.1953,	0.0262,
0.128,	0.4992,	2.4007,	0.1838,	0.0297,
0.139,	0.5054,	2.3976,	0.2284,	0.0361,

T_err_sigma,	T_ratio,	T_ratio_err,	T_sigma_func,	T_sigma_func_err
0.0262,	0.2822,	0.0425,	0.1824,	0.1141
0.0297,	0.2631,	0.0456,	0.2006,	0.1279
0.0361,	0.3374,	0.0578,	0.232 ,	0.1552

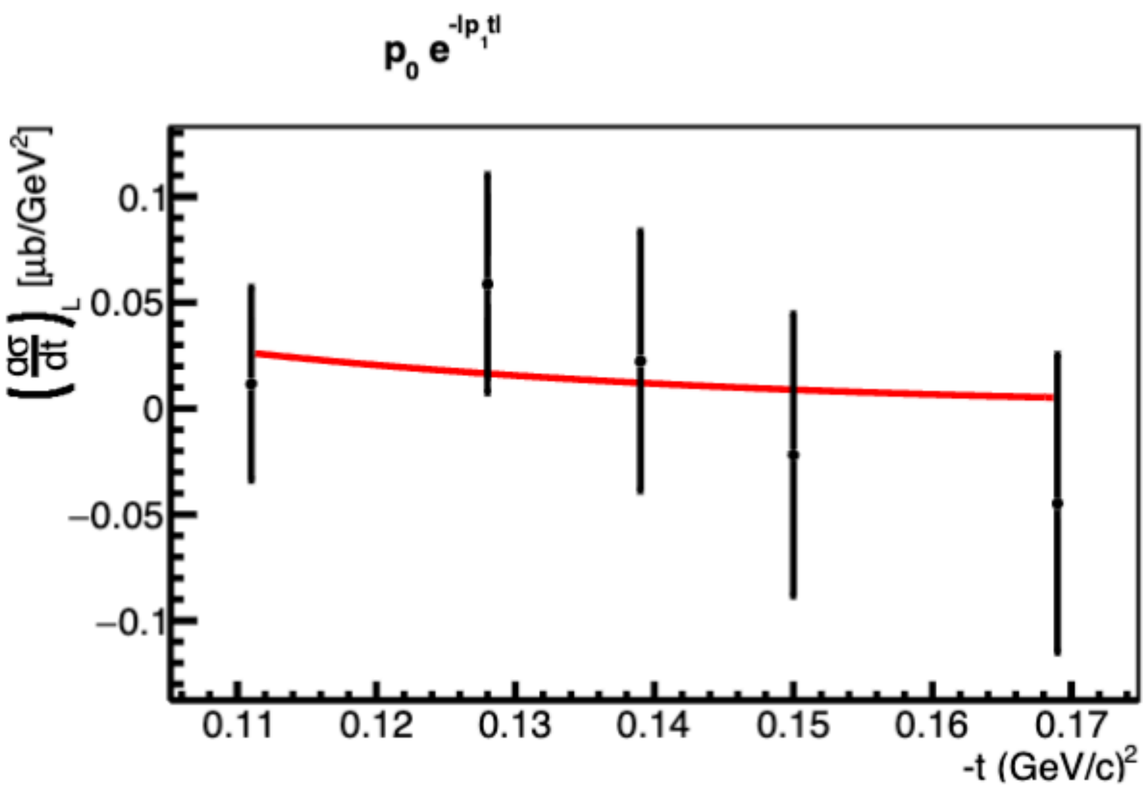
Investigate lowest t-bins

Longitudinal Cross section

$p(e, e'K^+)\Lambda$

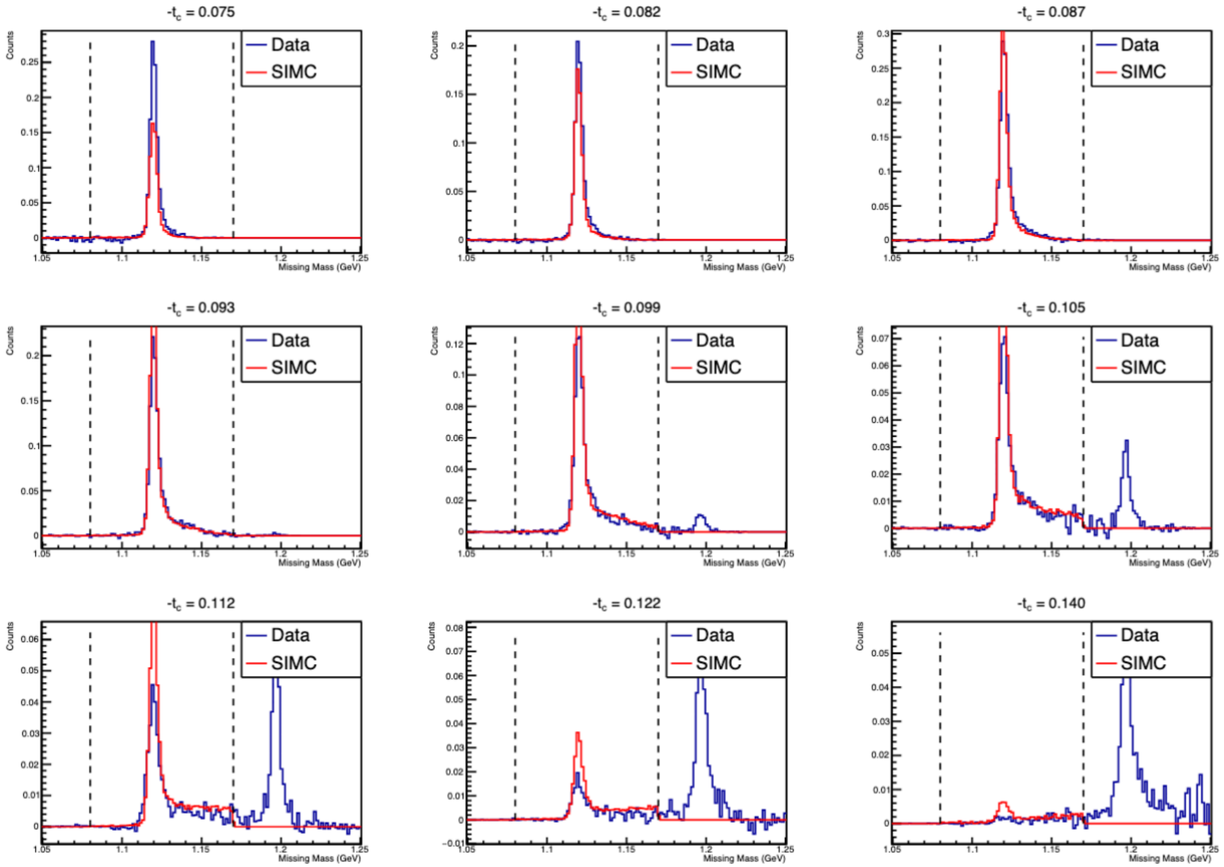


$p(e, e'K^+)\Sigma^0$

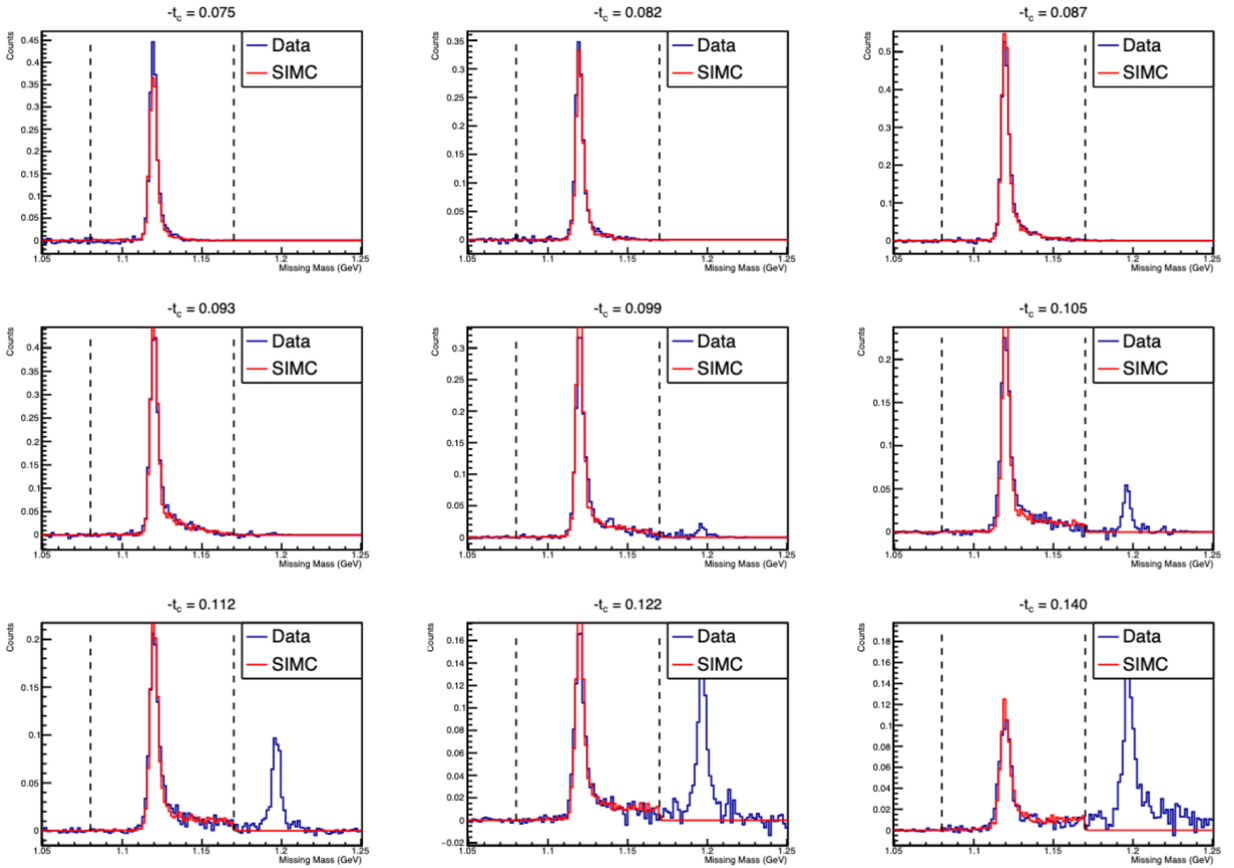


Missing Mass per t

Centre Low ε

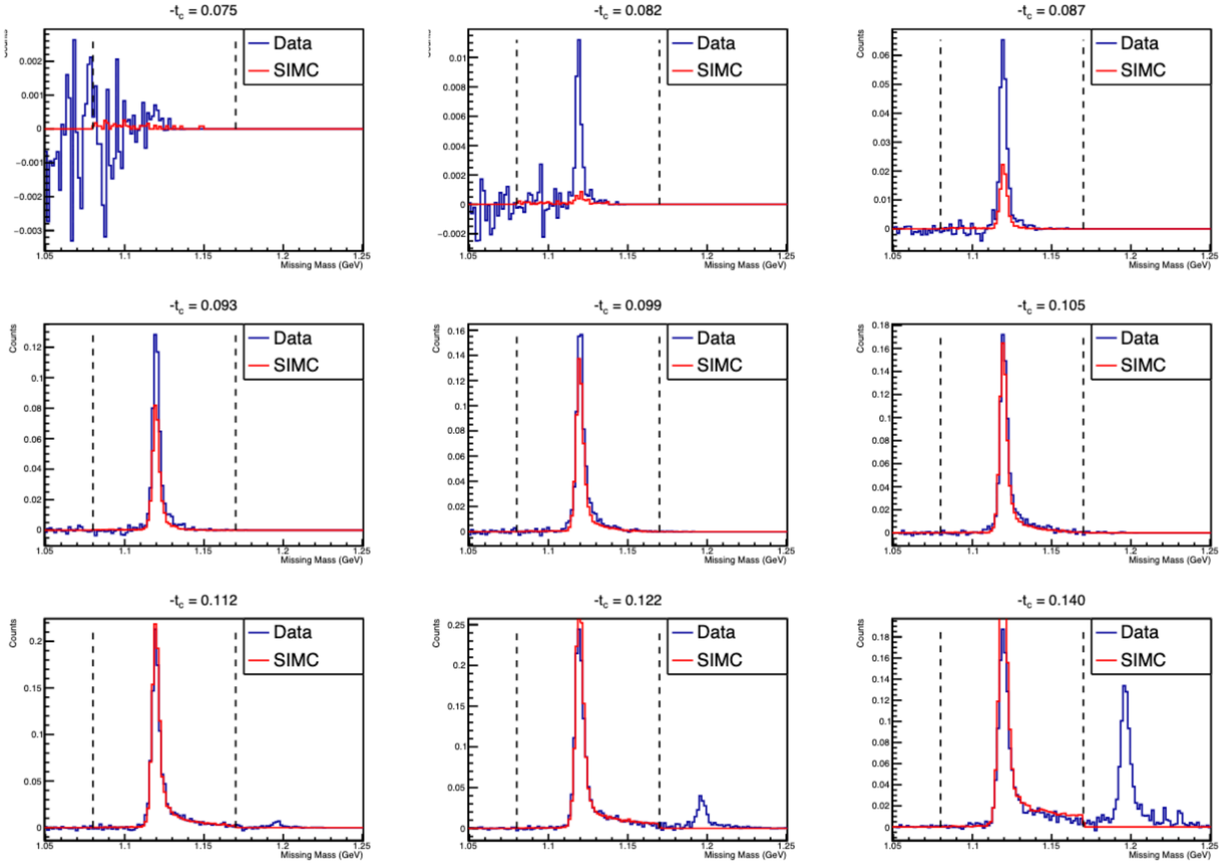


Centre High ε

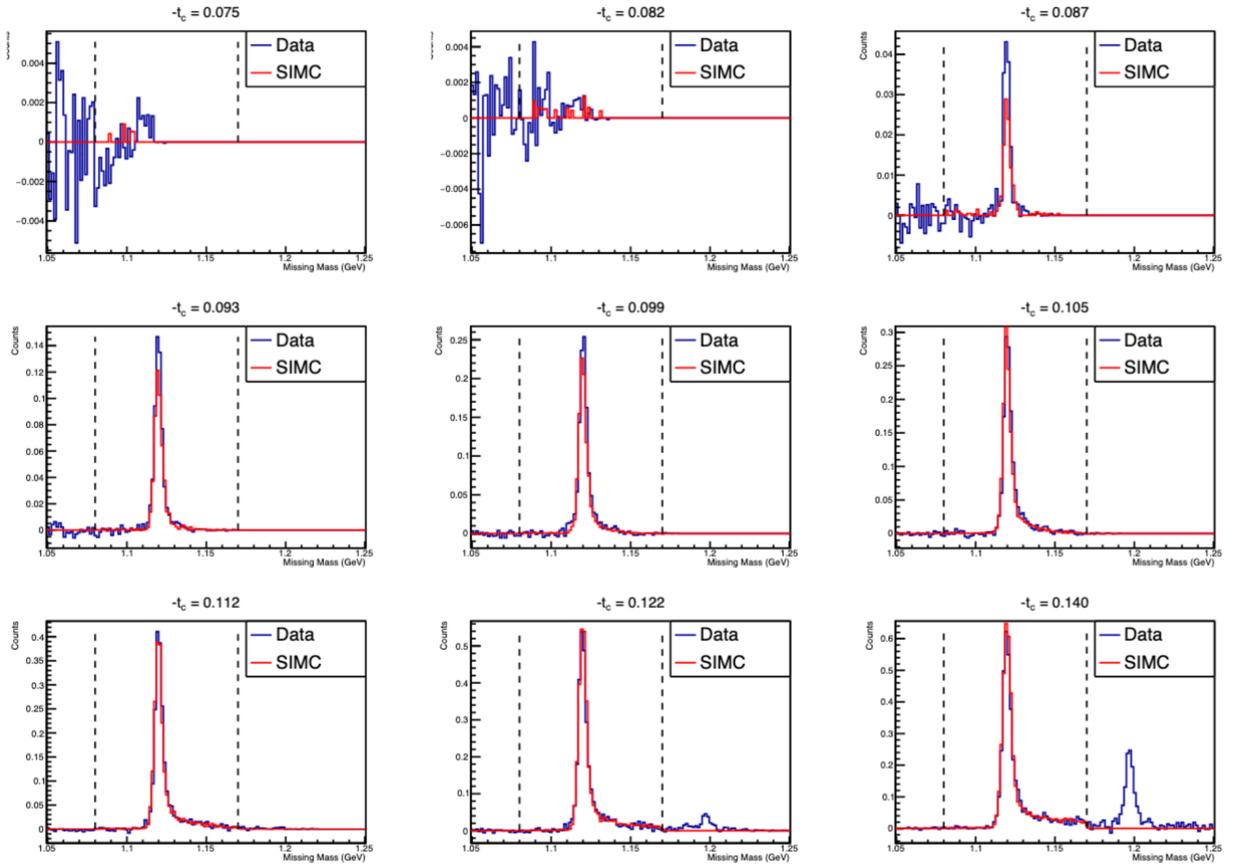


Missing Mass per t

Left Low ε

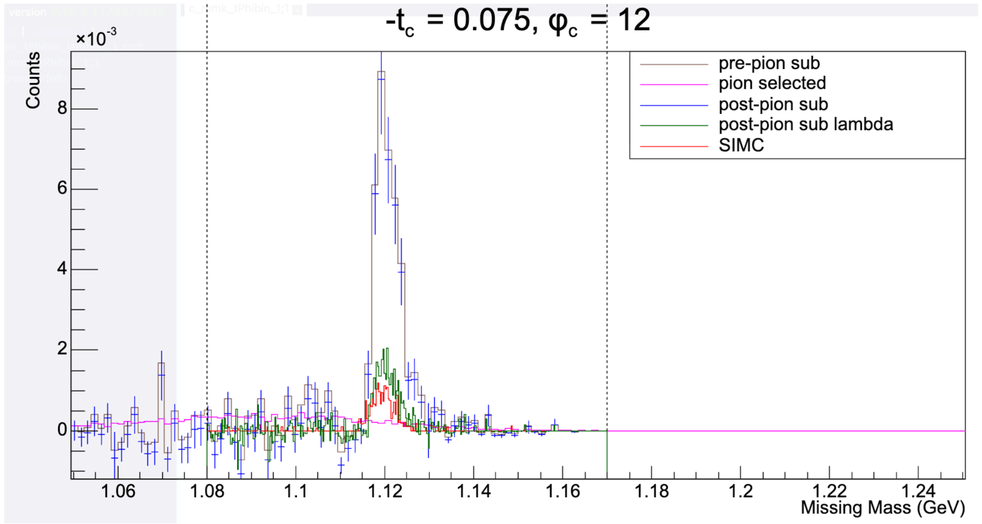


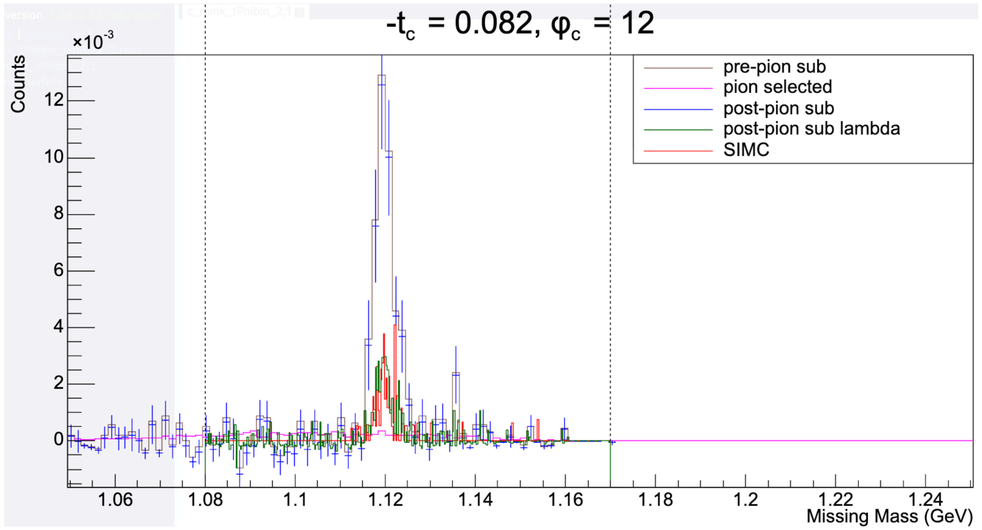
Left High ε



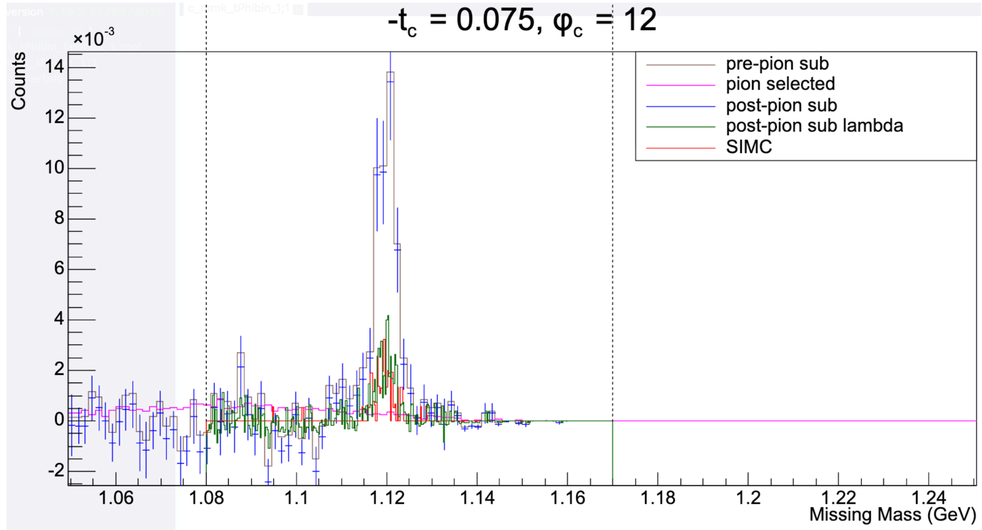
Missing Mass per t and ϕ bins

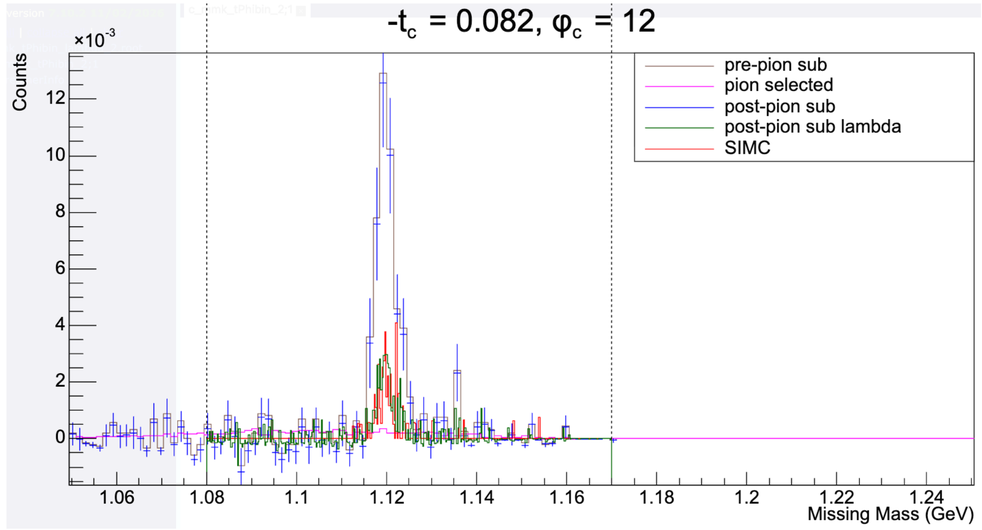
Centre Low ε





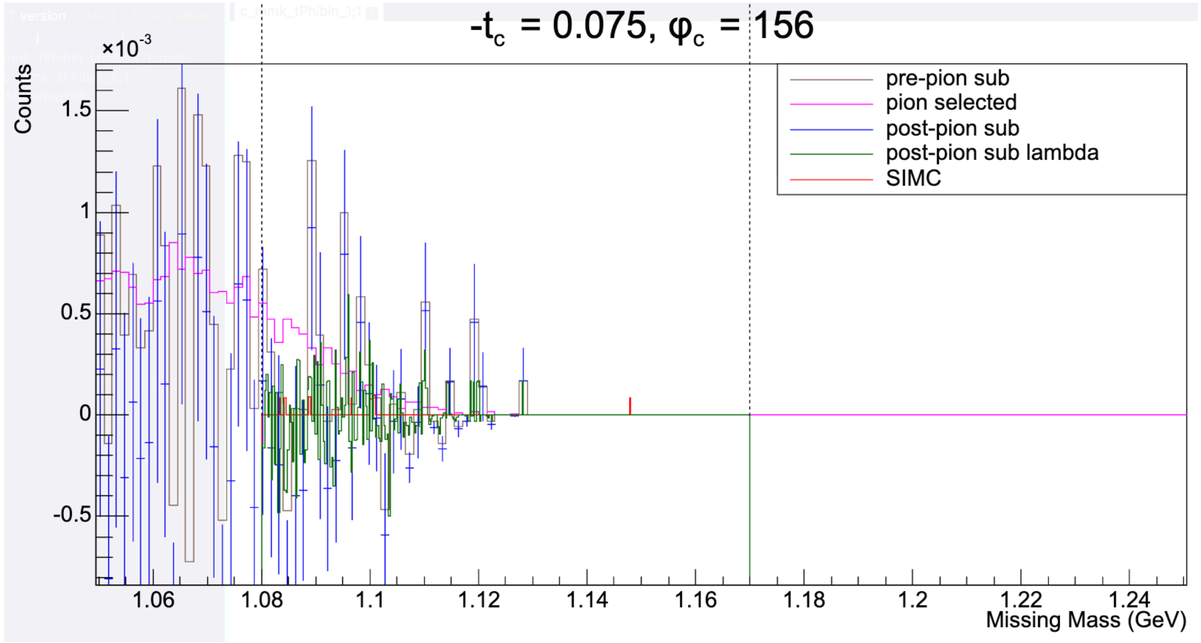
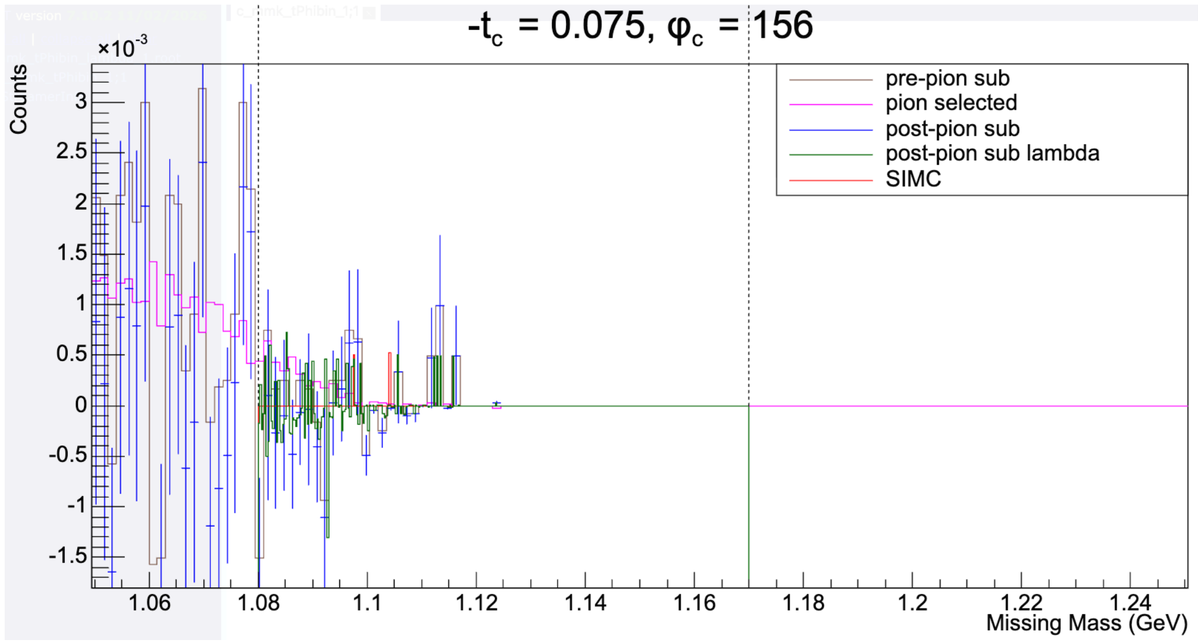
Centre High ε





Missing Mass per t and ϕ bins

Left Low ε



Left High ε