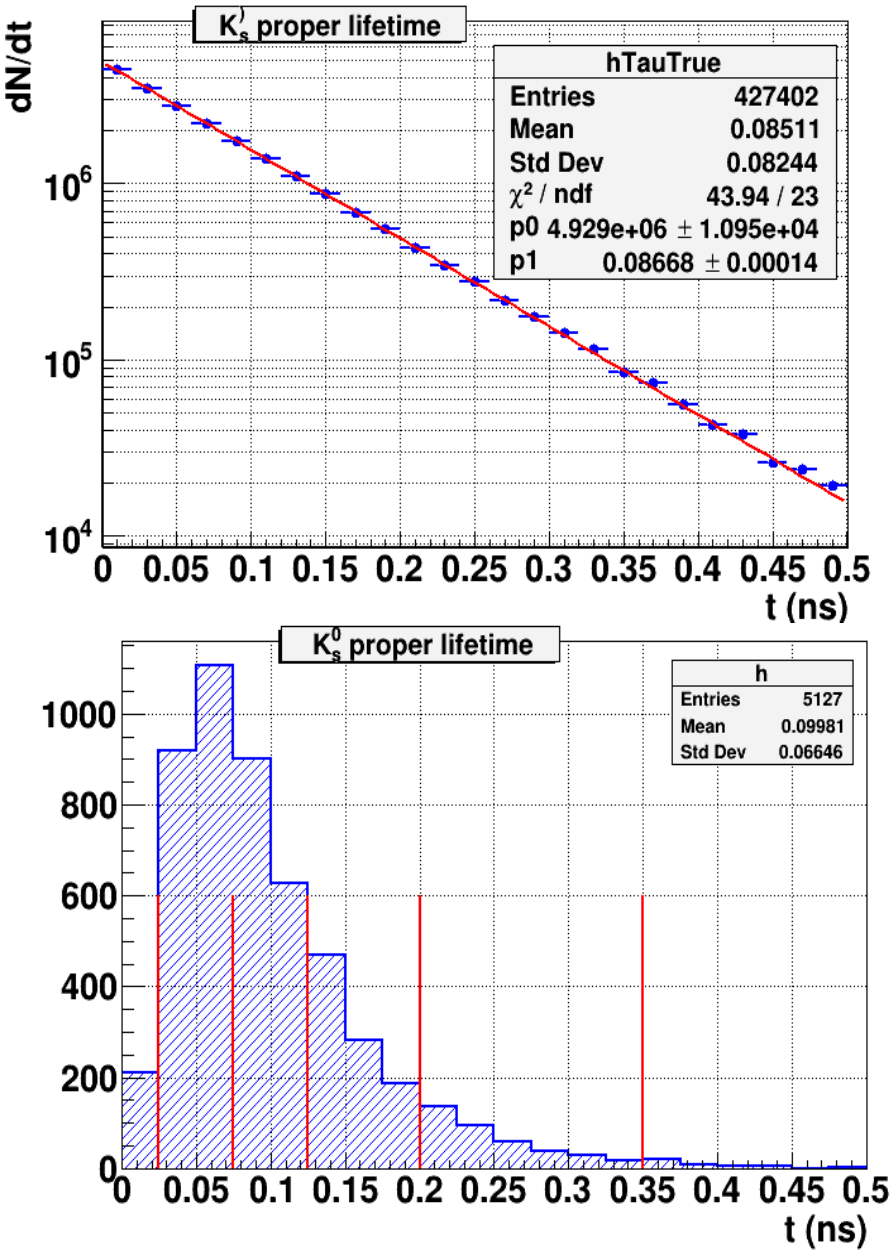
Lifetime of K^0_s: MC



Decay formula:

$dN / dt = N_0 / \tau * exp(-t/\tau)$,

$N_0 = p0 * p1 = 427241$

Proper life time:

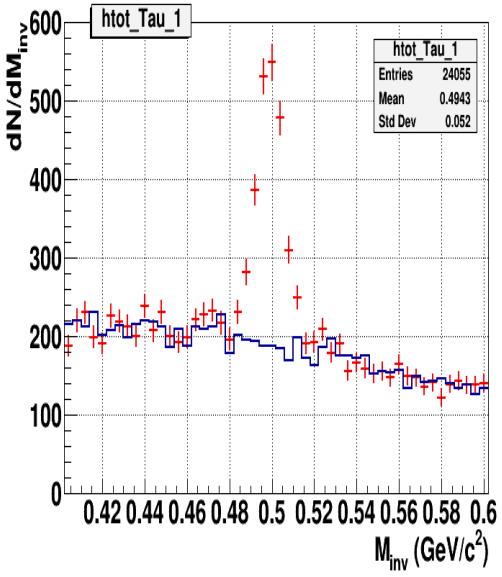
$t = lm / pc$

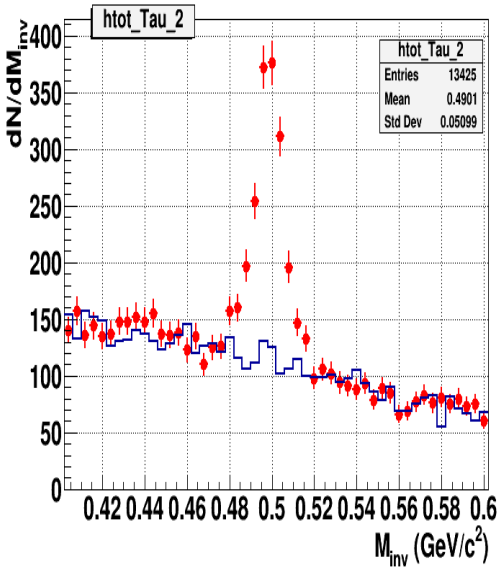
Table value t = 0.0895 ns

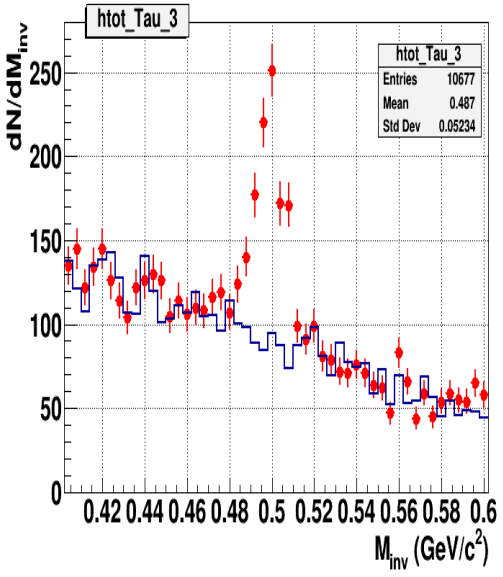
Used statistics:

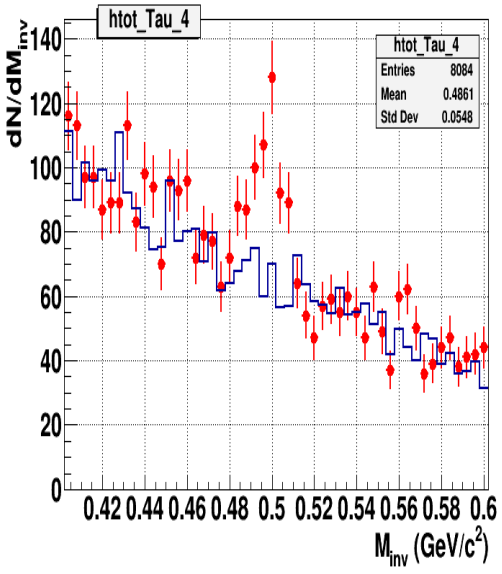
500k MC events
1M exp. data (run 7830)

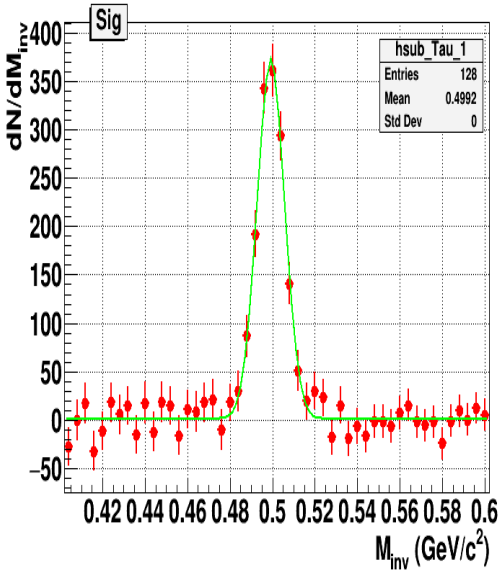
Mixed background subtraction: Data K

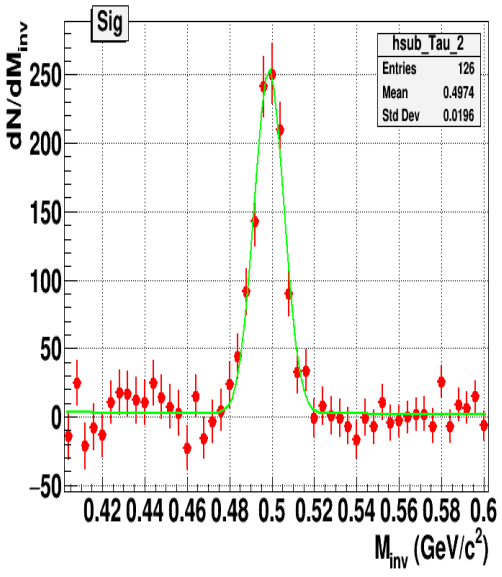


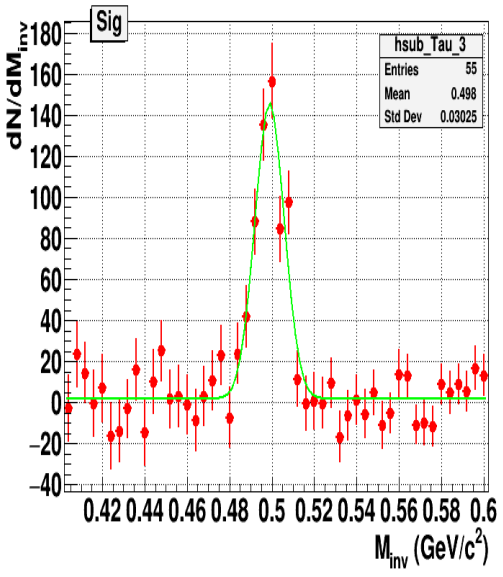


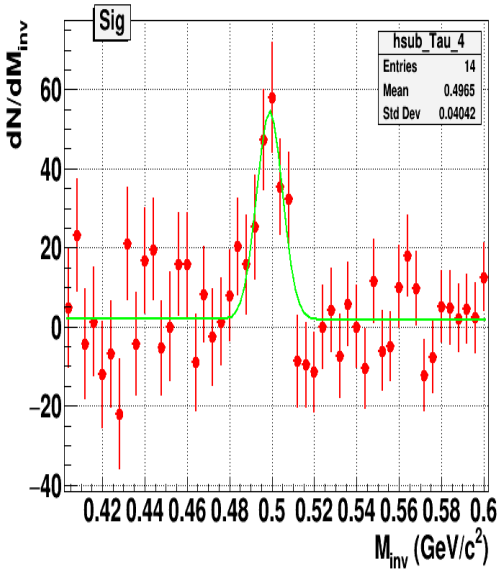








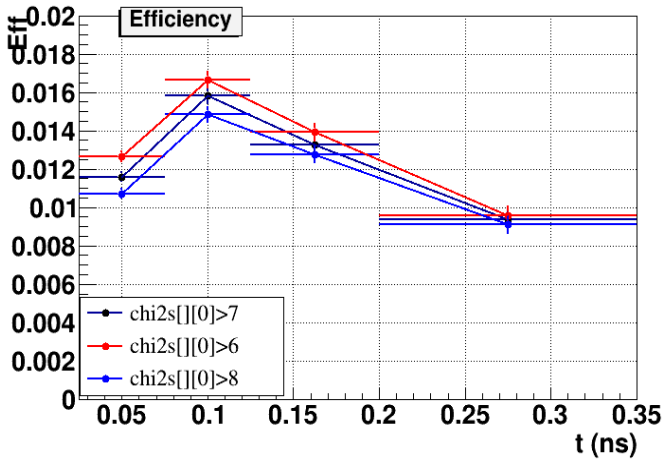


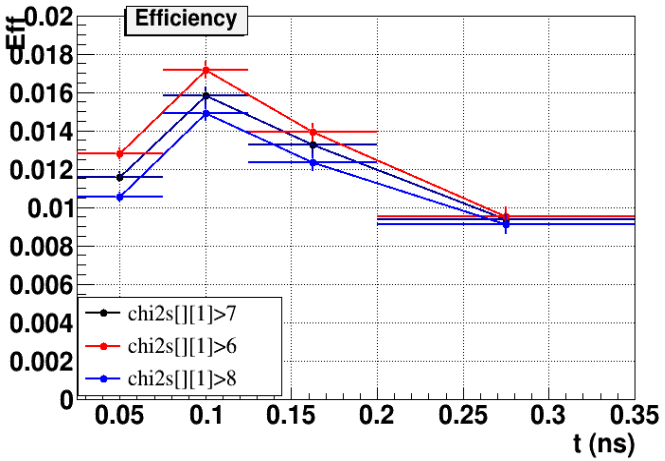


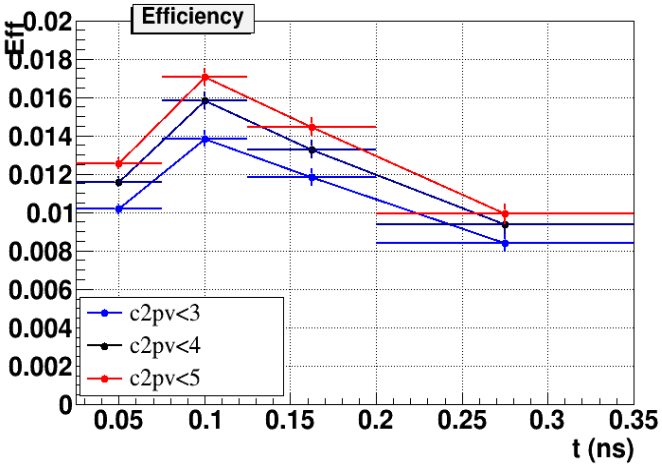
Lifetime of K^0_s

l0.chi2s[][0]>7&&l0.chi2s[][1]>7&&l0.c2pv<4&&l0.ps[][1]<3&&l0.pts[][0]>0.1&&l0.pts[][1]>0.1&&nvtx>1&&l0.c2s[][0]<4&&l0.c2s[][1]<4

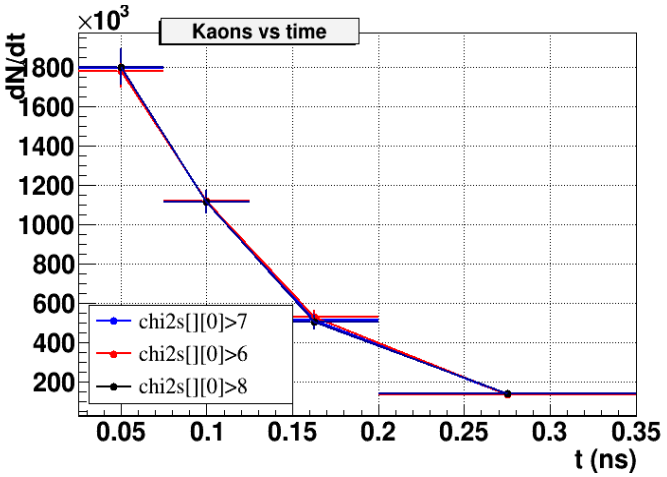
MC

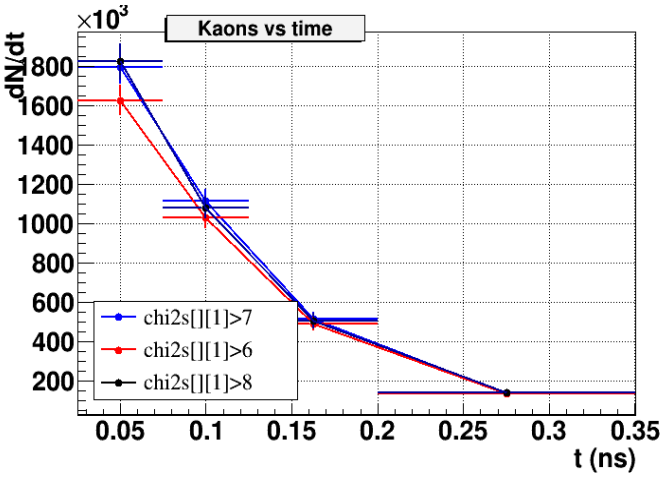


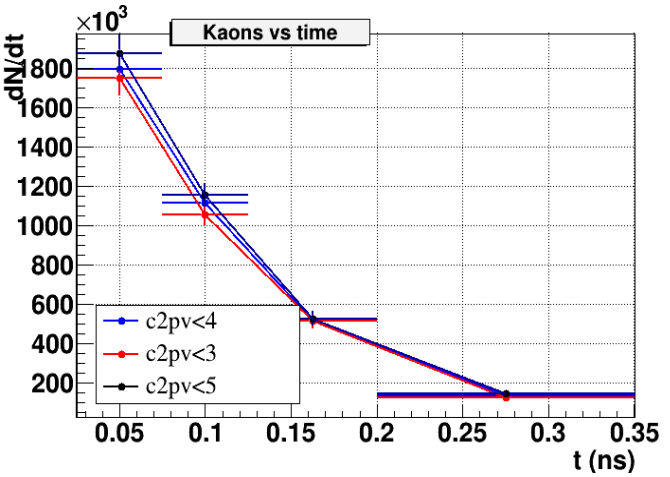




Data corrected for efficiency

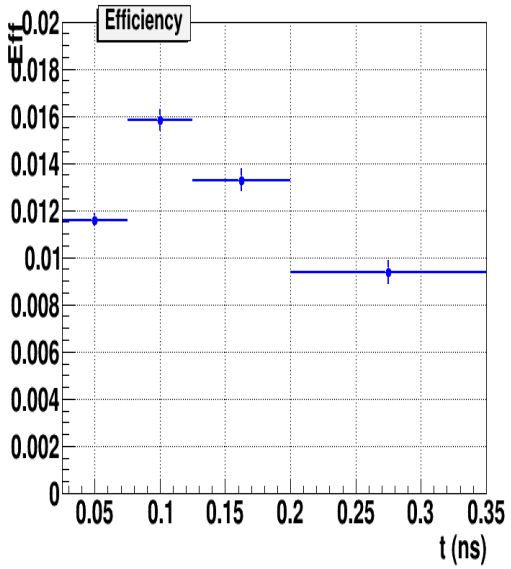


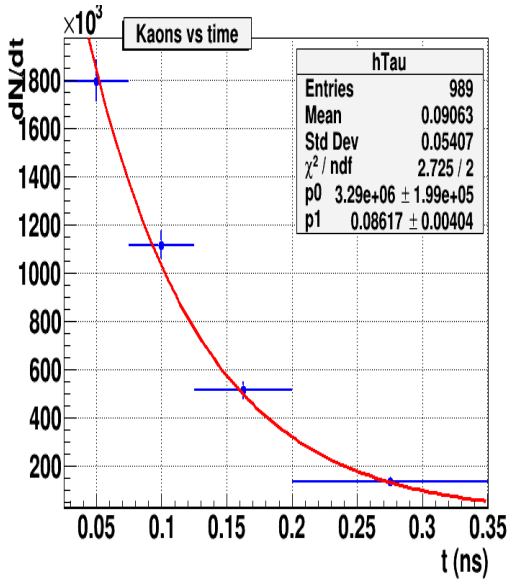


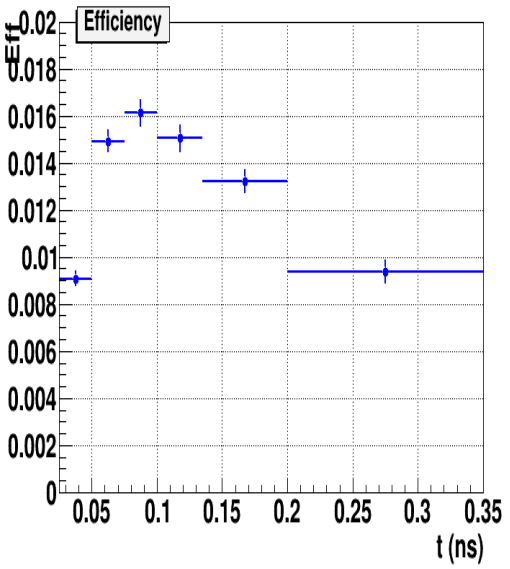


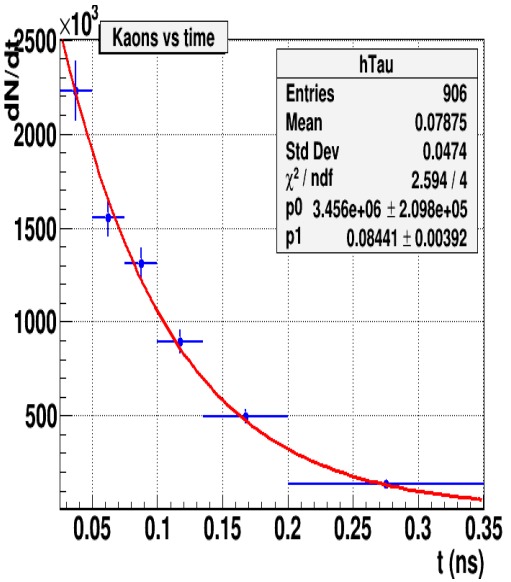
Lifetime of K^0_s

4 bins vs 6bins









3 cuts:	centr. value	c2pv<3	c2pv<5	chi2s[1]>6	chi2s[1]>8	chi2s[0]>6	chi2s[0]>8
τ, ns	0.086±0.004	0.086±0.004	0.086±0.004	0.090±0.004	0.085±0.004	0.087±0.004	0.086±0.004
Mult.	0.473±0.036	0.457 ±0.036	0.492 ± 0.038	0.436±0.034	0.471 ±0.037	0.473 ± 0.035	0.473 ±0.037
χ^2 / NDF	2.73 / 2	2.27 / 2	2.27/ 2	2.72/ 2	1.06 / 2	3.40/ 2	2.26 / 2