KaonLT Meeting

February 20th, 2024

Richard Trotta

$$egin{aligned} \sigma_L &= (p_1 \cdot Q_{ ext{dep},L} \cdot f_t) \cdot \exp\left(-\left|p_2 \cdot t_t
ight|
ight) \ \sigma_T &= (p_5 \cdot \exp\left(-\left|p_6 \cdot t_t
ight|)
ight) \cdot Q_{ ext{dep},T} \end{aligned}$$

$$\sigma_{LT} = \left(p_9 \cdot \exp\left(-\left|p_{10} \cdot t_t
ight|
ight) + rac{p_{11}}{\left|t_t
ight|}
ight) \cdot \sin(heta_{
m cm})$$

$$\sigma_{TT} = (p_{13} \cdot Q_{ ext{dep},TT}) \cdot f_t \cdot \sin^2(heta)$$

Best functional forms for 4.4, but I copied the incorrect sigT when doing 5.5

$$\sigma_{TT}=(p_{13}\cdot Q_{ ext{dep},TT})\cdot f_t\cdot \sin^2(heta)$$
out I $w_{ ext{factor}}=rac{1}{(W^2-M^2)^{0.85\cdot W^2-5.97}}$ where $w_{ ext{correct}}$ and $w_{ ext{factor}}=rac{1}{(W^2-M^2)^{0.85\cdot W^2-5.97}}$

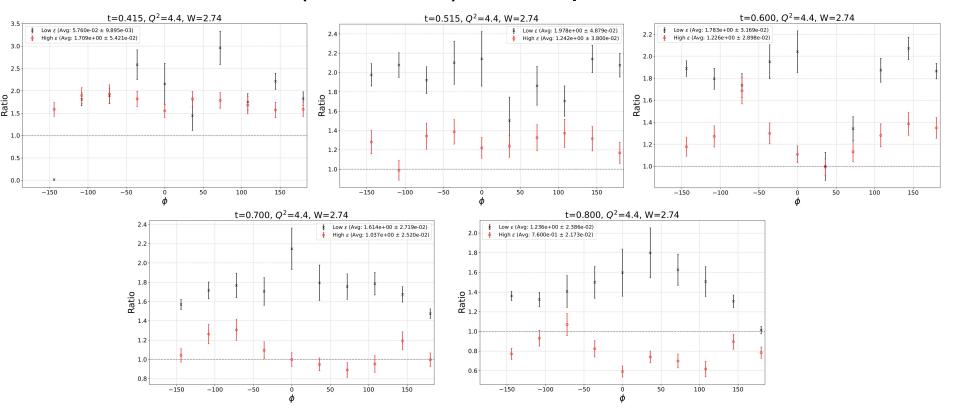
$$egin{aligned} \sigma_L &= \left(p_1 \cdot Q_{ ext{dep},L} \cdot f_t
ight) \cdot \exp\left(-\left|p_2 \cdot t_t
ight|
ight) \ \sigma_T &= -\left(p_5 + p_6 f_t
ight) |t| e^{-|p_7 t|} Q_{ ext{dep}_T} \ \ \sigma_{LT} &= \left(p_9 \cdot \exp\left(-\left|p_{10} \cdot t_t
ight|
ight) + rac{p_{11}}{|t_t|}
ight) \cdot \sin(heta_{ ext{cm}}) \end{aligned}$$

 $\sigma_{TT} = (p_{13} \cdot Q_{\mathrm{dep},TT}) \cdot f_t \cdot \sin^2(\theta)$

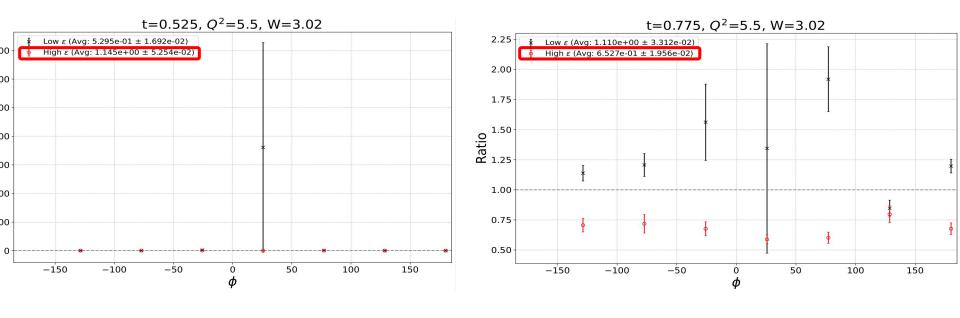
$$\sigma_{TT} = (p_{13} \cdot Q_{ ext{dep},TT}) \cdot f_t \cdot \sin^2(heta)$$
 Luckily, had 4.4 $w_{ ext{factor}} = rac{1}{2}$

 $w_{
m factor} = rac{-}{(W^2 - M^2)^{0.85 \cdot W_{
m c}^2 - 5.97 \cdot W_{
m c}^2 + 12.68}}$ functional forms already saved

 Q^2 =4.4, W=2.74, t=(0.35-0.85), 5t, 10 φ



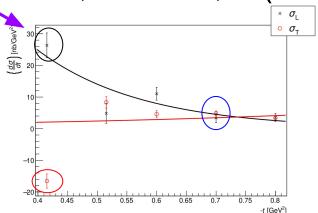
$Q^2=5.5$, W=3.02, t=(0.40-0.90), 2t, 6 φ

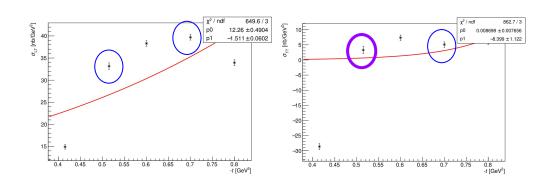


****i=15, but need to rerun SIMC with more events

- Very low statistics for this setting
 - ~1000 events per t-bin
- Still, trend is relatively consistent with 4.4 given these limits
 - 4.4 slope ~ 1.95
 - 5.5 slope ~ 1.69

 $Q^2=4.4$, W=2.74, t=(0.35-0.85), 5t, 10ϕ Still consistent?





 $Q^2=5.5$, W=3.02, t=(0.40-0.90), 2t, 6 φ

