KaonLT Meeting

February 20th, 2024

Richard Trotta

$$\sigma_L = (p_1 \cdot Q_{\text{dep},L} \cdot f_t) \cdot \exp\left(-\left|p_2 \cdot t_t\right|\right)$$

~~$$\sigma_T = (p_5 \cdot \exp\left(-\left|p_6 \cdot t_t\right|\right)) \cdot Q_{\text{dep},T}$$~~

$$\sigma_{LT} = \left(p_9 \cdot \exp\left(-\left|p_{10} \cdot t_t\right|\right) + \frac{p_{11}}{|t_t|}\right) \cdot \sin(\theta_{\text{cm}})$$

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

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

$$w_{\text{factor}} = \frac{1}{(W^2 - M^2)^{0.85 \cdot W_c^2 - 5.97 \cdot W_c + 12.68}}$$

$$\sigma_L = (p_1 \cdot Q_{\text{dep},L} \cdot f_t) \cdot \exp\left(-\left|p_2 \cdot t_t\right|\right)$$

$$\sigma_T = -\left(p_5 + p_6 f_t\right) |t| e^{-|p_7 t|} Q_{\text{dep}_T}$$

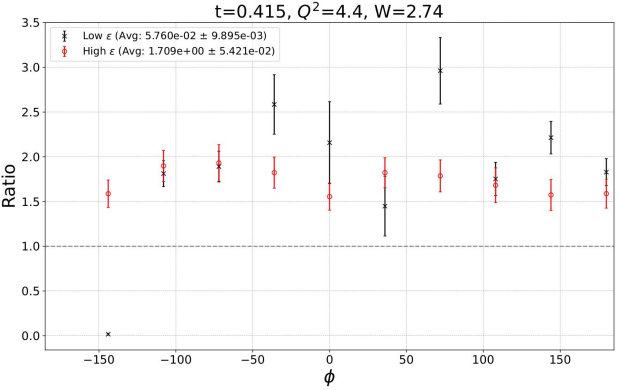
$$\sigma_{LT} = \left(p_9 \cdot \exp\left(-\left|p_{10} \cdot t_t\right|\right) + \frac{p_{11}}{|t_t|}\right) \cdot \sin(\theta_{\text{cm}})$$

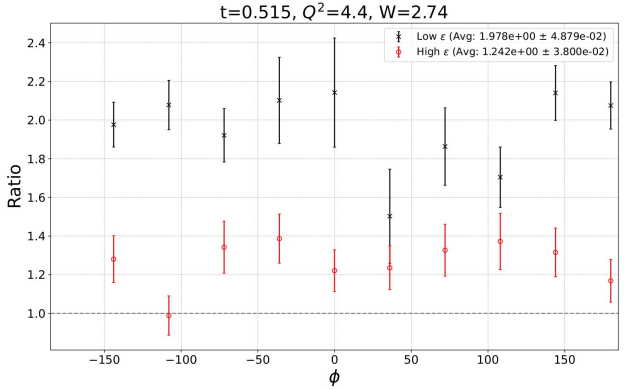
$$\sigma_{TT} = (p_{13} \cdot Q_{\text{dep},TT}) \cdot f_t \cdot \sin^2(\theta)$$

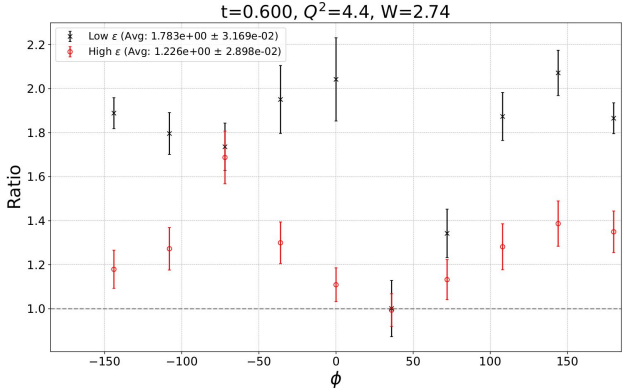
Luckily, had 4.4 with these functional forms already saved

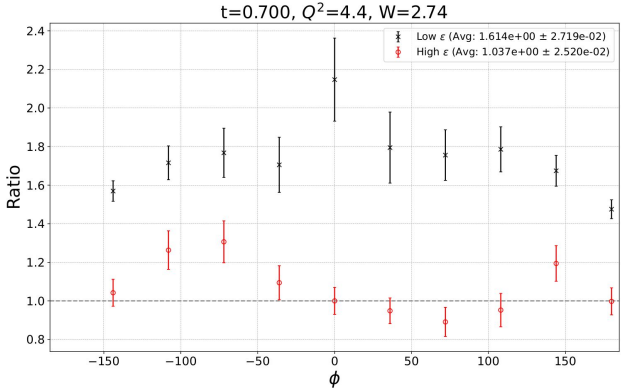
$$w_{\text{factor}} = \frac{1}{\left(W^2 - M^2\right)^{0.85 \cdot W_c^2 - 5.97 \cdot W_c + 12.68}}$$

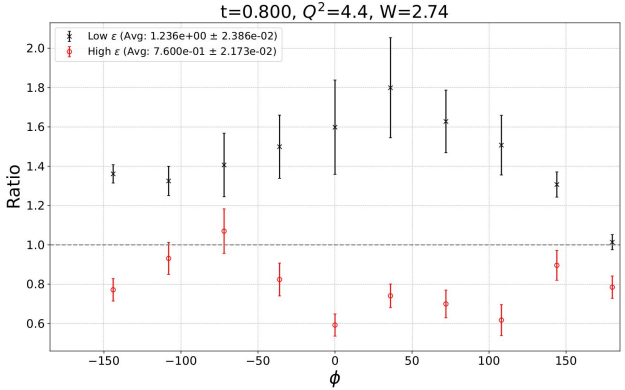
Q^2=4.4, W=2.74, t=(0.35-0.85), 5t, 10φ





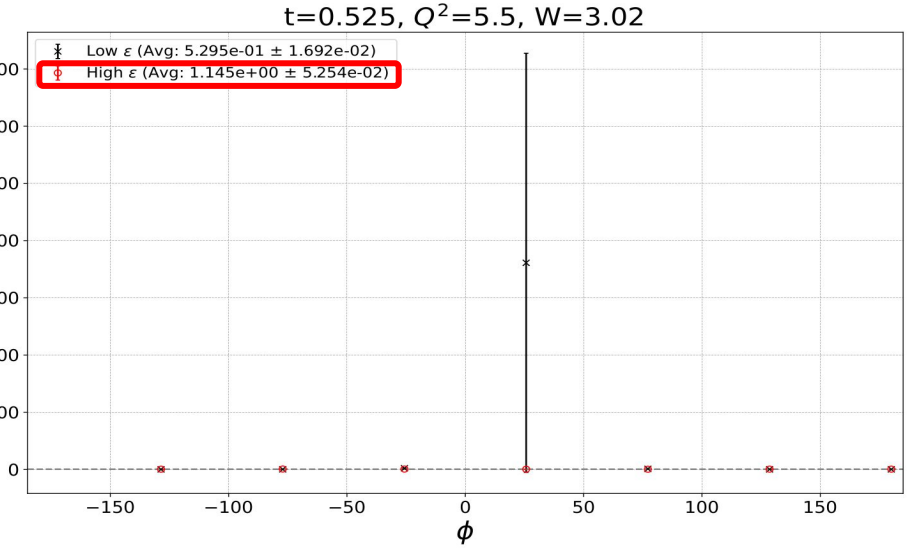


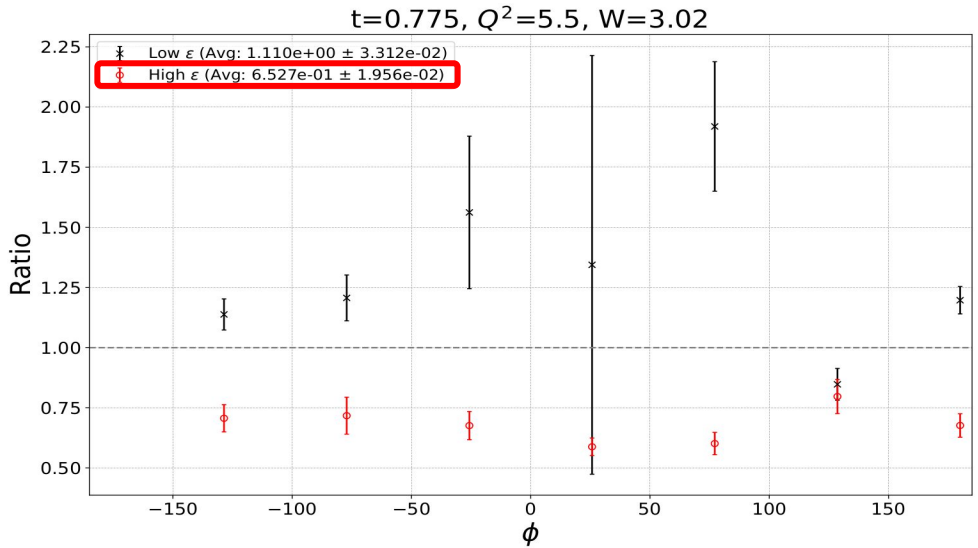




****i=10

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



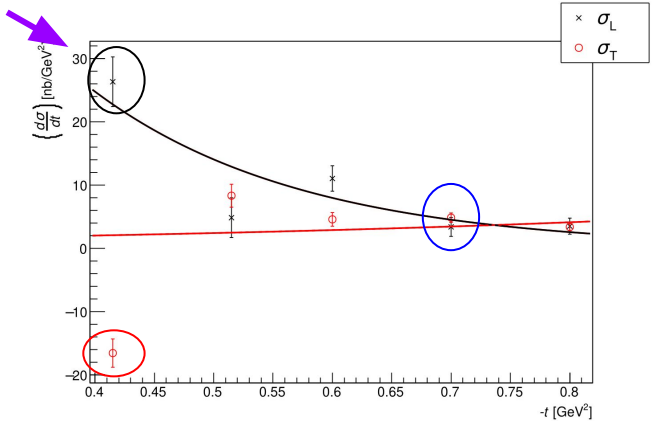


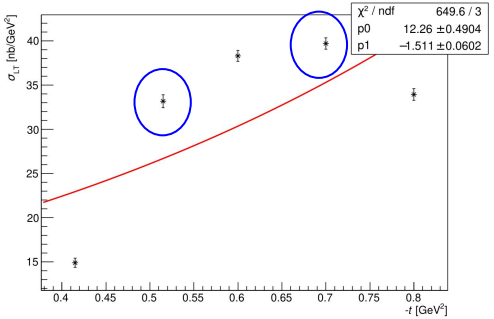
******i=15, but need to rerun SIMC with more events**

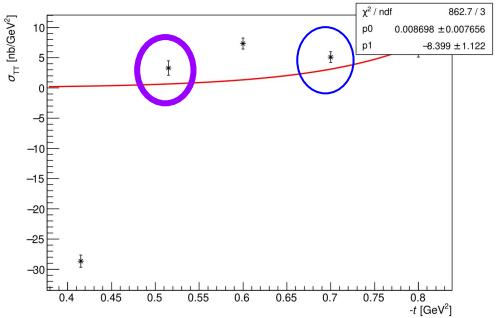
- Very low statistics for this setting
  - ~1000 events per t-bin
- Still, trend is relatively consistent with 4.4 given these limits
  - 4.4 slope ~ 1.95
  - 5.5 slope ~ 1.69

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, 6φ