KaonLT Meeting

July 17th, 2025

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Constants:

$$\pi, \quad m_{\mathrm{tar}} = 0.93827231, \quad m_{\pi+} = 0.139570, \quad m_{K+} = 0.493677$$

$$t_{\mathrm{av}} = \left(0.05032 + 0.01345 \, \ln Q^2_{\mathrm{set}}\right) Q^2_{\mathrm{set}},$$

$$f_{\mathrm{tav}} = \frac{|t| - t_{\mathrm{av}}}{t_{\mathrm{av}}},$$

$$f_t = \frac{|t|}{\left(|t| + m^2_{K+}\right)^2},$$

$$\sigma_L = \left(p_1 \, f_t\right) \, \exp\!\left(-|p_2 \, t|\right),$$

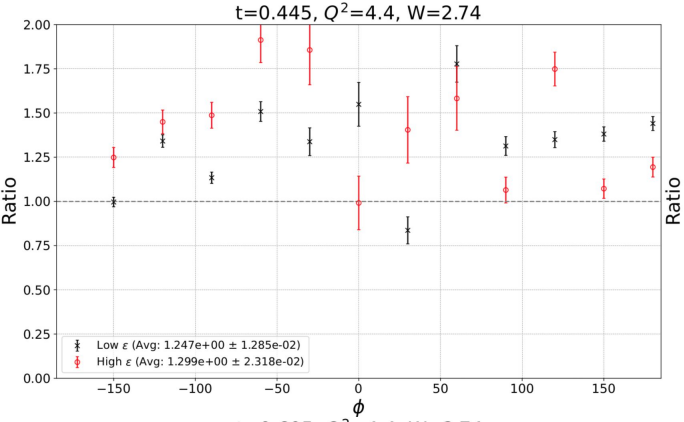
$$\sigma_T = \frac{p_5}{|t|^{\,p_6}} \, \exp\!\left(-|p_7 \, t|\right),$$

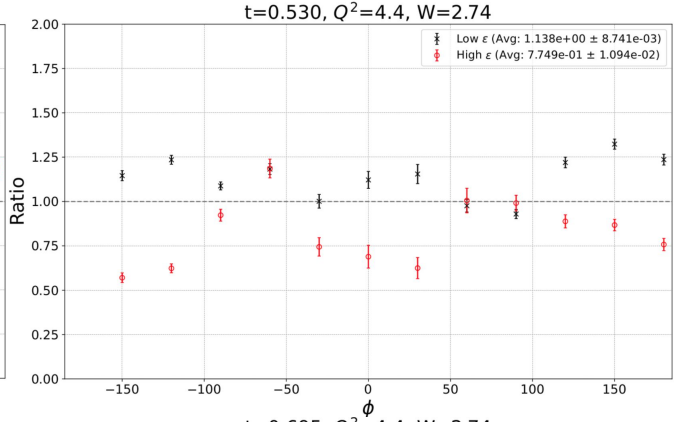
$$\sigma_{LT} = \frac{p_9}{|t|},$$

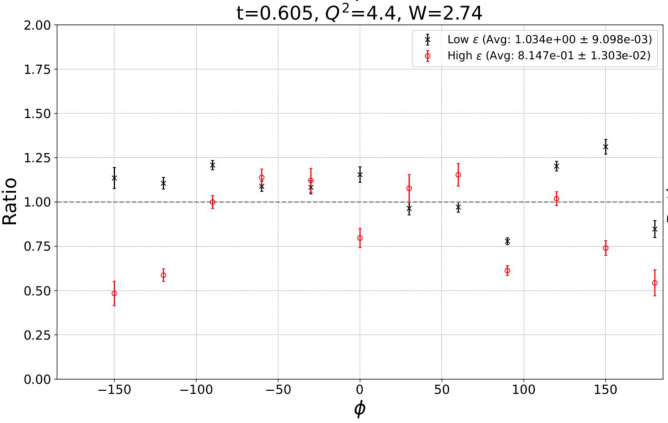
$$\sigma_{TT} = \frac{p_{13}}{|t|^{\,p_{14}}} \, \exp\!\left(-|p_{15} \, t|\right),$$

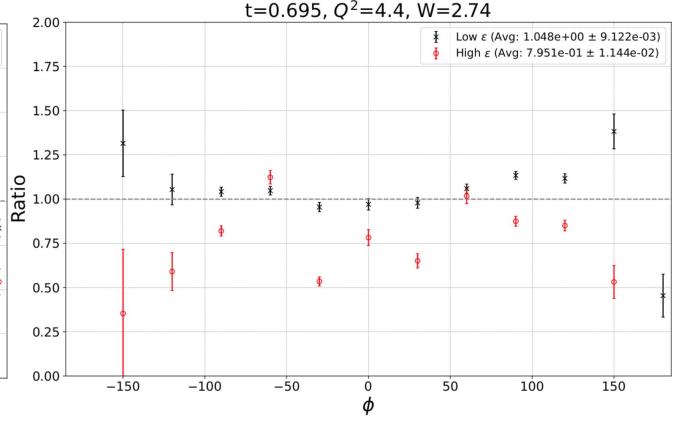
$$w_{\mathrm{factor}} = \frac{1}{\left(W^2 - m^2_{\mathrm{tar}}\right)^{\,0.85 \, W^2_{\mathrm{set}} - 5.97 \, W_{\mathrm{set}} + 12.68}}.$$

Q^2=4.4, W=2.74 | 1.08 ≤ M_K ≤ 1.14, 0.88 ≤ M_π ≤ 0.94









Center Only

- Using same parameterization for all
  - Parameterization from 15 iterations shown 6/26/25 (all φ settings)

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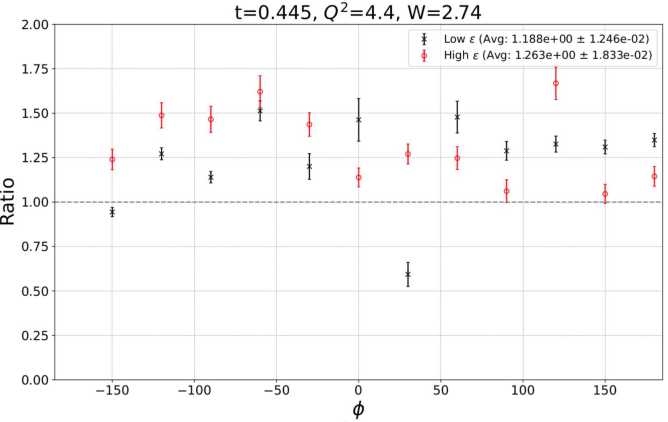

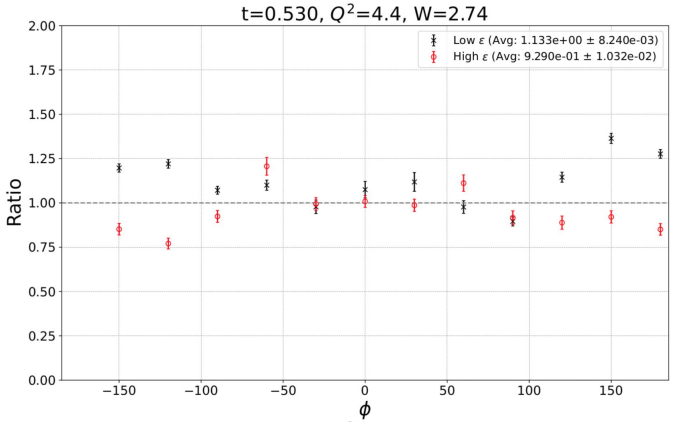

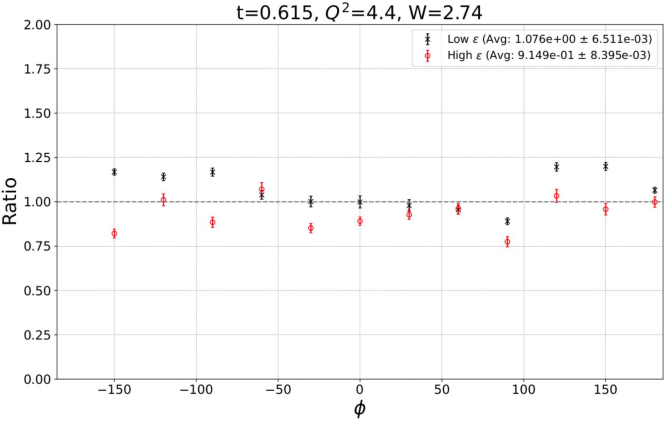

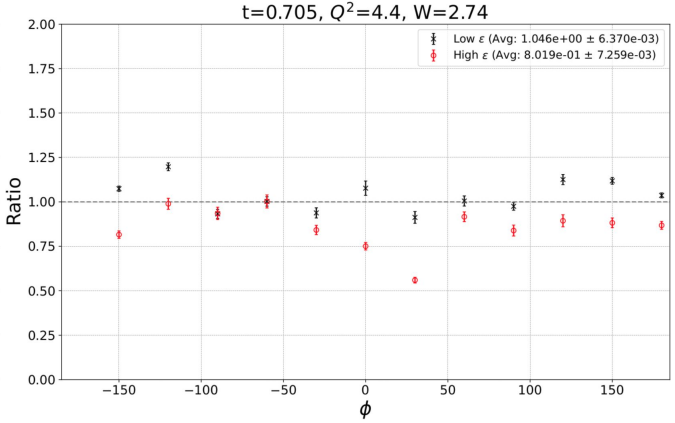

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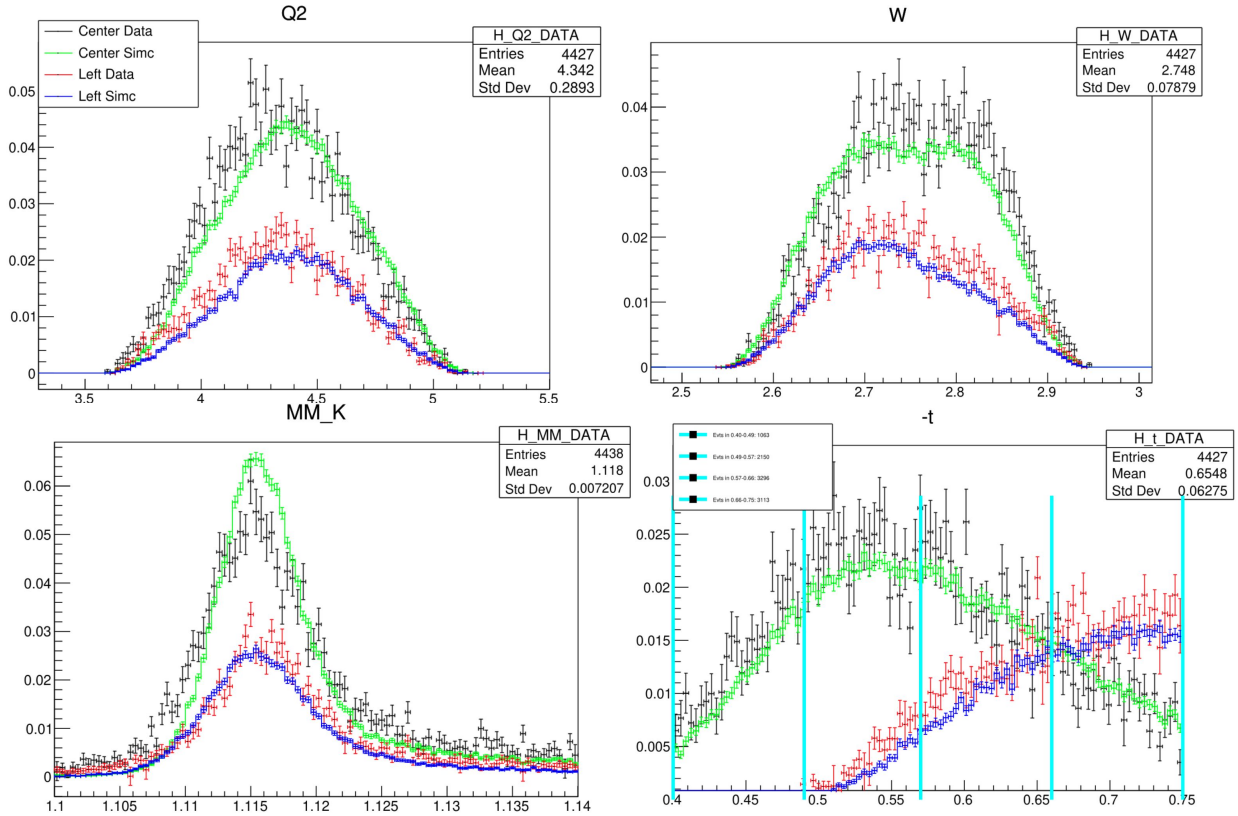

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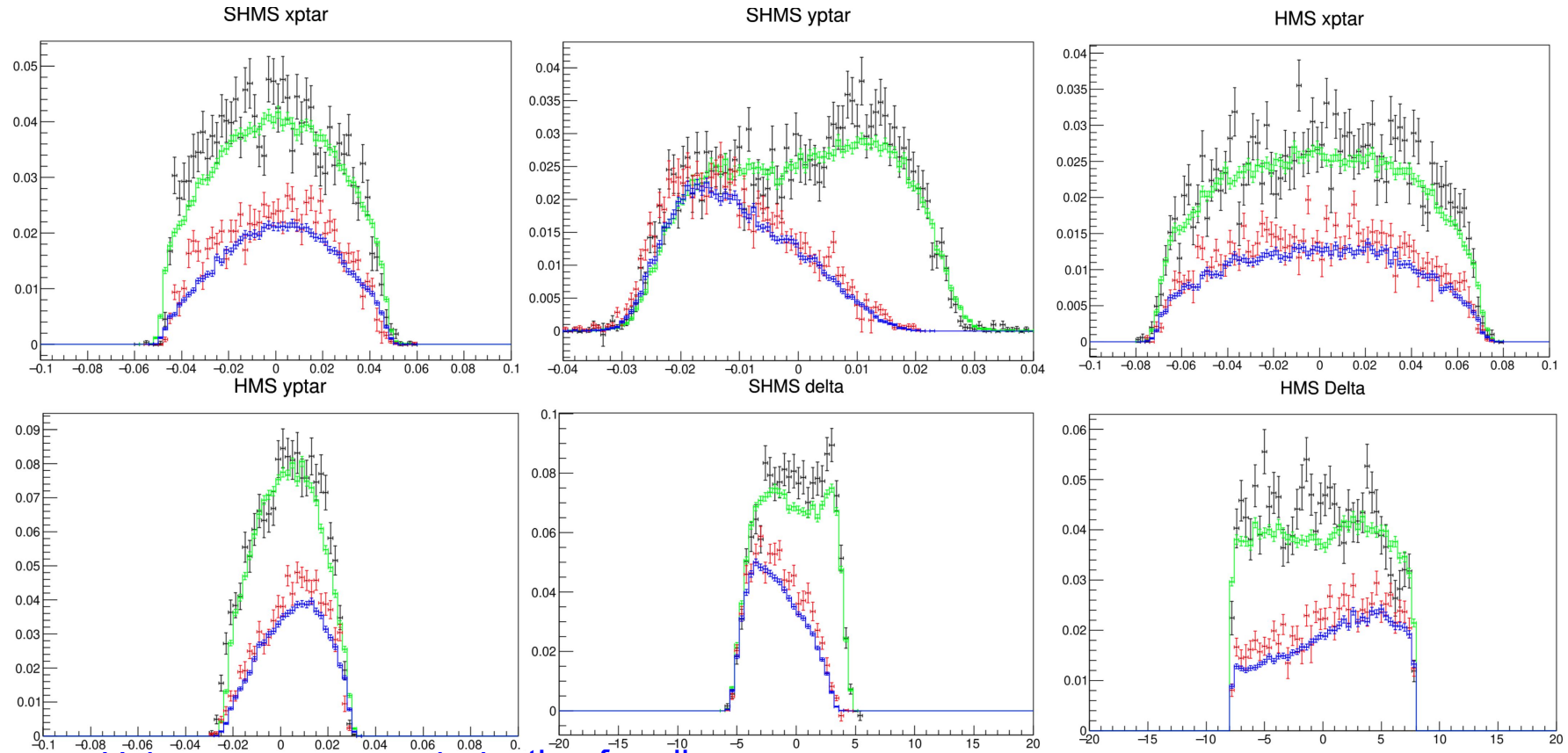

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To Do

1. Reanalyze…
   - Q^2=3.0/W=2.32
   - Q^2=4.4/W=2.74
   - Q^2=5.5/W=3.02
2. Re-parameterize…
   - Q^2=2.115/W=2.95
   - Q^2=3.0/W=3.14**
3. Full SIMC runs with new functions and parameters for all settings **(Start of August)**
4. Full Replay for all settings **(Start of August)**
5. Refine model, last fit optimizations
6. Finalize systematics study **(Mid-September)**
7. Q^2 dependence, etc.
8. Paper Submission **(End of October)**

- Start writing in Mid-September

Extra