Round Table: key issues in Drell-Yan, models, predictions

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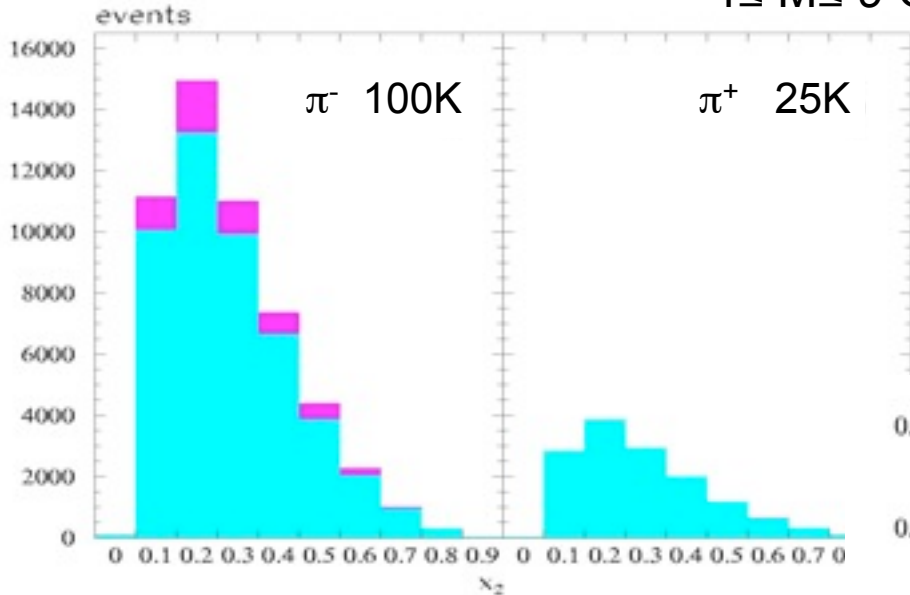
some th. issues in Drell-Yan at COMPASS

1.-   Are QCD corrections under control?
K factor OK but listen more, also about sea contributions..

2.-   Partonic structure of the pion required
but poorly known

3.-   SIDIS-DY sign change of T-odd TMD's

4.-   Which are the best kinematics and phase space to get the
largest asymmetries and better explore the TMD's ?

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Programme

1. - W. Vogelsang & M. Aicher (Regensburg)
   Further remarks on the Drell-Yan process in the fixed-target regime

2. - L. Gamberg (Penn State - Berks)
   Boer-Mulders & the pion: Drell-Yan phenomenology

3. - B. Pasquini (Pavia)
   The Boer-Mulders-Pretzelosity asymmetry

4. - A. Bianconi (Brescia)
   Simulation of azimuthal asymmetries at COMPASS
   in the $Q_T \gg Q$ regime
   ➡ included in contribution to second part of round table

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$$\pi^{\pm} p^{\uparrow} \rightarrow \mu^{+}\mu^{-}X$$

100K events (before dilut.) E_{π}=100 GeV s=200 GeV^2

$4 \leq M \leq 9$ GeV $0.5 \leq q_T \leq 2.5$ GeV/c

$$\sin(\phi - \phi_{S_p}) > 0$$
$$\sin(\phi - \phi_{S_p}) < 0$$

Bianconi & Radici
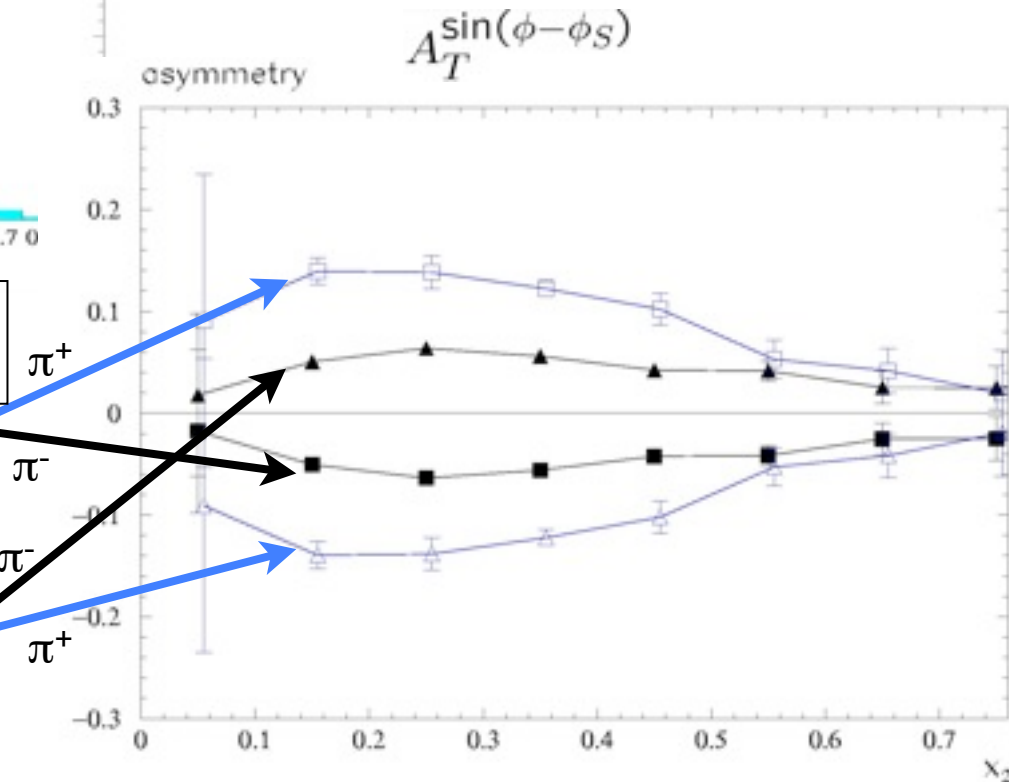P.R. D**73** (06) 114002

$$A_T^{\sin(\phi - \phi_S)}$$

param.   Anselmino et al., PRD**72** (05) 094007
72 (05) 099903

$$f_{1T}^{\perp q}\Big|_{SIDIS} = +f_{1T}^{\perp q}\Big|_{Drell-Yan}$$

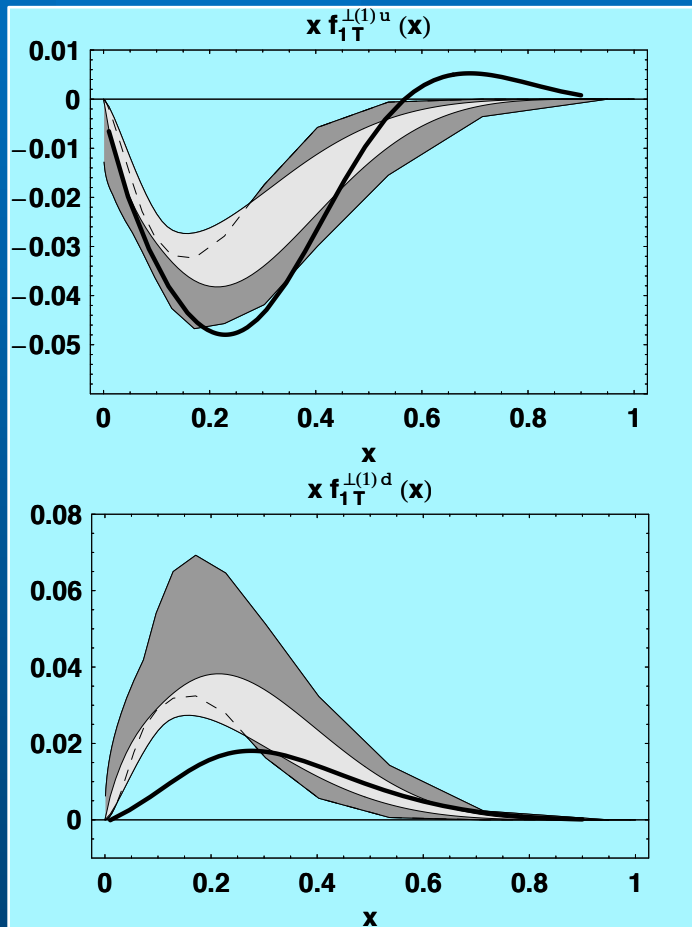$$f_{1T}^{\perp q}\Big|_{SIDIS} = -f_{1T}^{\perp q}\Big|_{Drell-Yan}$$

$N_u = 0.32$ $N_d = -1.0$

Intern. Workshop on Structure &
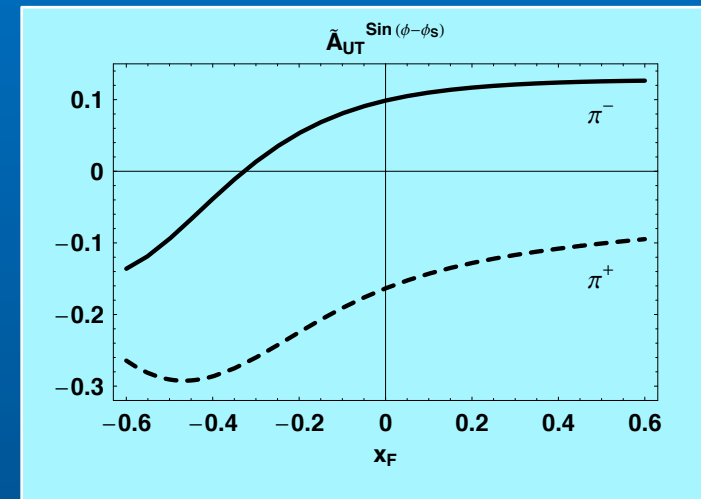Spectroscopy

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Prediction of the diquark spectator model

Bacchetta, Conti, Radici, PRD**78** (08) 074010; Bacchetta, Radici, Conti, Guagnelli, arXiv: 1003.1328[hep-ph]

$\pi^- \, p^\uparrow \rightarrow \; \mu^+ \, \mu^- \, X$

$E_\pi = 160 \text{ GeV}$
$4 < Q < 9 \text{ GeV}$
$s = 300 \text{ GeV}^2$
$\tau \approx 0.16$

$$\tilde{A}_{UT}^{q_T \, \sin(\phi - \phi_{S_2})} = 2 \, \frac{\left\langle \frac{q_T}{M_2} \, \sin(\phi - \phi_{S_2}) \right\rangle_{UT}}{\langle 1 \rangle_{UU}} = 2 \, \frac{\tilde{A}(y)}{\tilde{A}(y)} \, \frac{\sum_a e_a^2 \, x_1 f_1^{\bar{a}}(x_1) \, x_2 f_{1T}^{\perp(1)a}(x_2)}{\sum_a e_a^2 \, x_1 f_1^{\bar{a}}(x_1) \, x_2 f_1^a(x_2)}$$

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