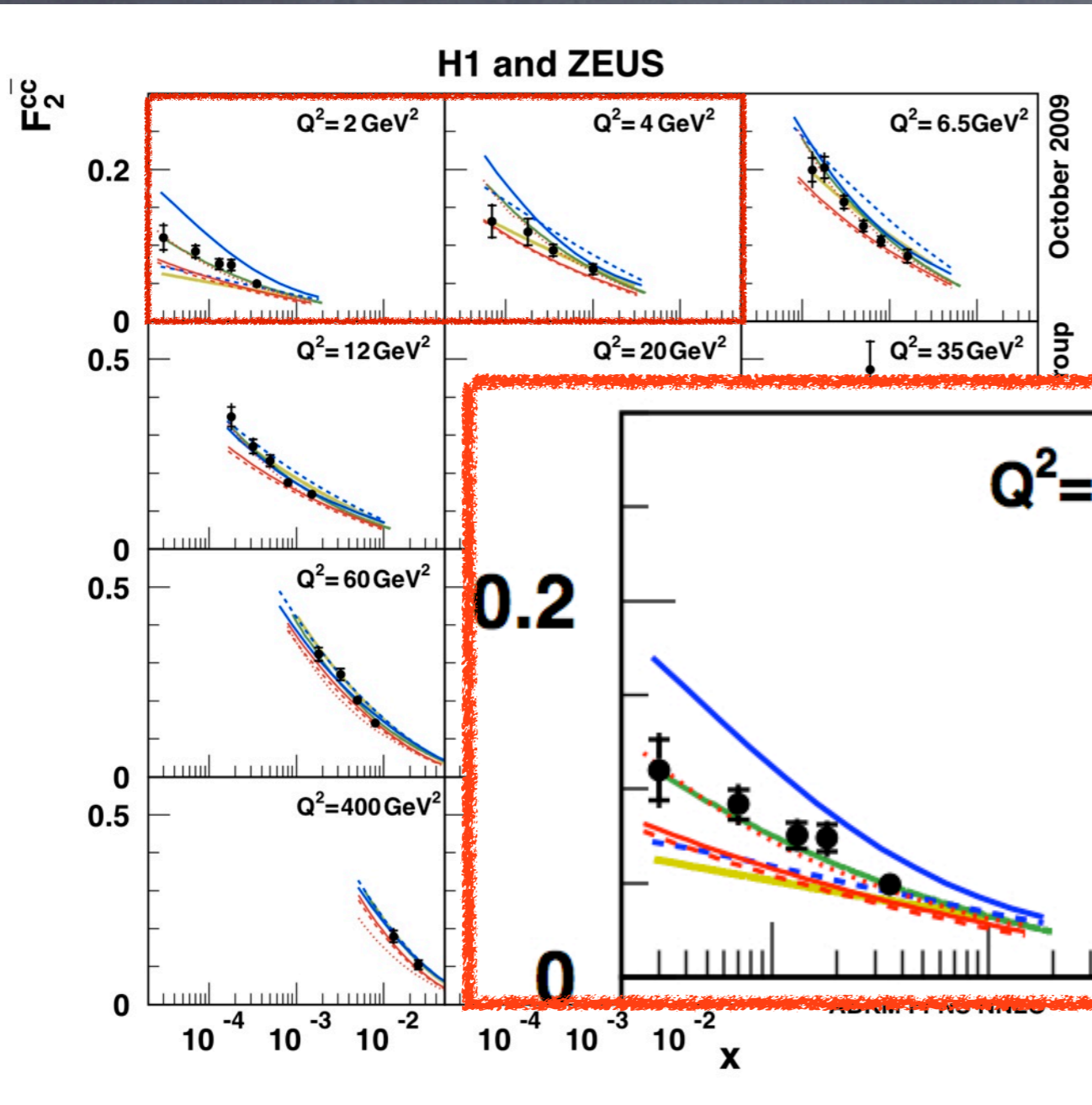
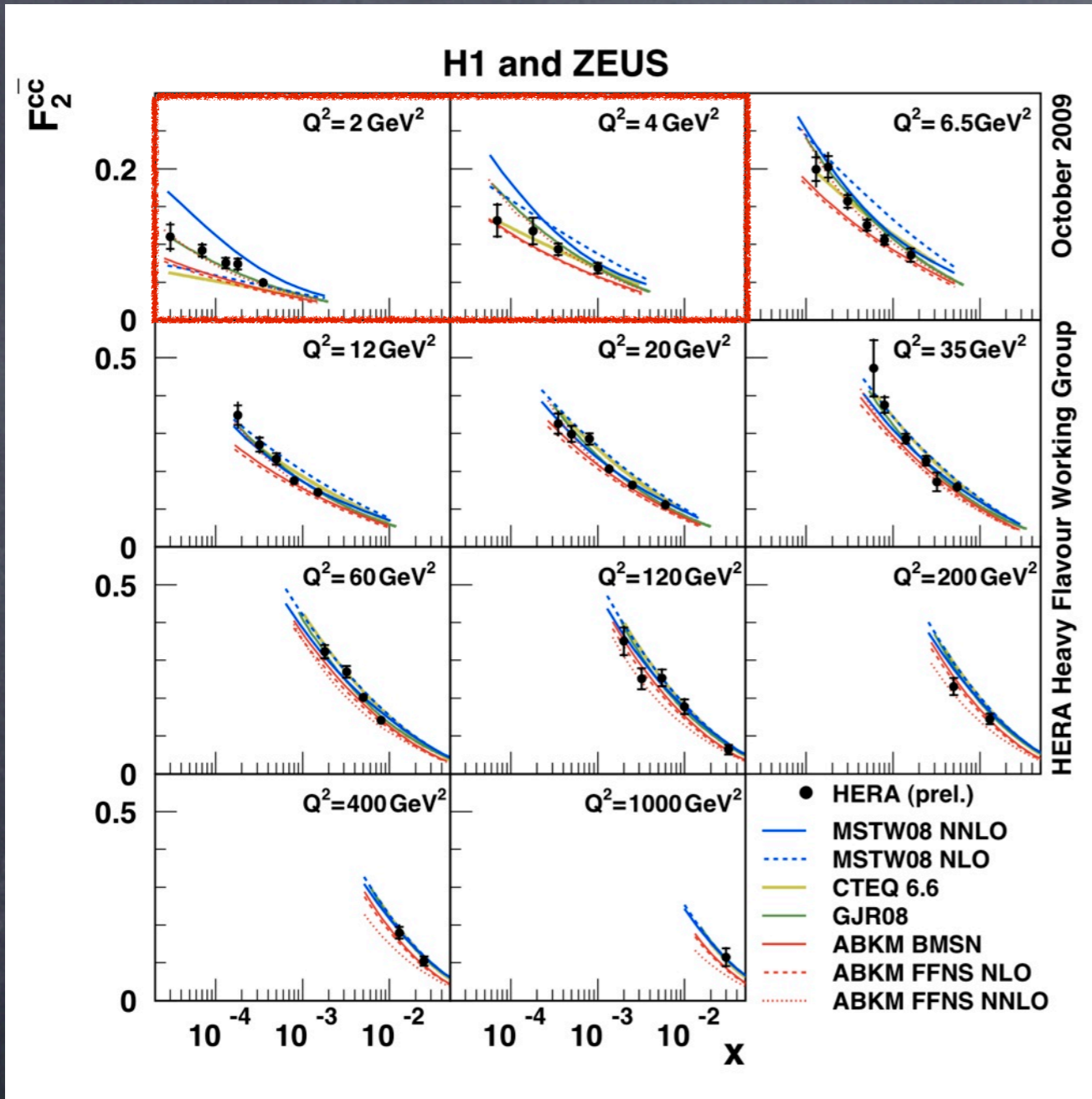


# Uncovered Topic in HFWG: $D^*$ at low $Q^2$



H1 HERA I data (99-2000)  
contribute

# Uncovered Topic in HFWG: $D^*$ at low $Q^2$



Low  $Q^2$  DIS :  $Q^2 < 5 \text{ GeV}^2$

Quite unprecise data so far  
Most difficult for theorists to predict  
Most interesting region!

What can be done at H1:

- reanalysis of HERA I data
- analysis of HERA II data

# Uncovered Topics in HFWG

$D^* \rightarrow K\pi\pi$  analysis of HERA-II data for  $Q^2 < 5 \text{ GeV}^2$

Feasibility studies (2007-20078) very promising

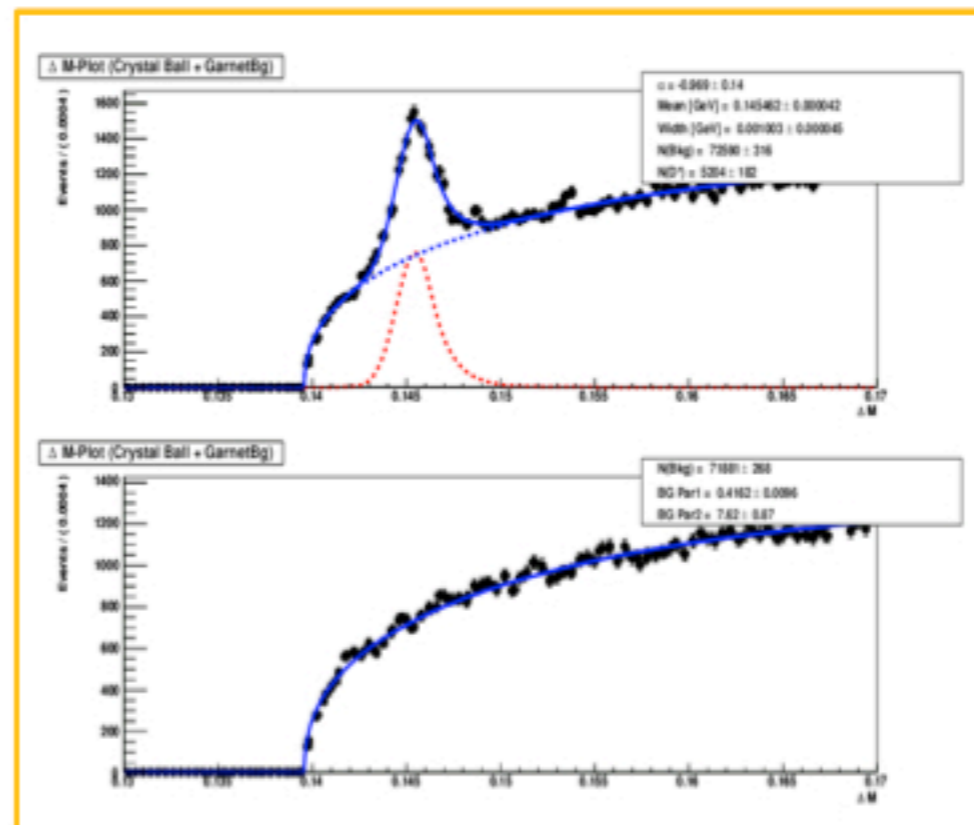
Topic uncovered, requires new analysis

## Introduction – Plenty of $D^*$ s at low $Q^2$

- About 5000  $D^*$ s at  $2 < Q^2 < 5 \text{ GeV}^2$
- Low scattering angles
  - at the edge of SpaCal
  - is the calorimeter calibrated there?

$D^* \rightarrow K\pi\pi_s$  selection:

- $p_t(D^*) > 1 \text{ GeV}$
- $|\eta(D^*)| < 2$
- $p_t(K), p_t(\pi) > 200 \text{ MeV}$
- $|m(K\pi) - m_{D^0}| < 70 \text{ MeV}$



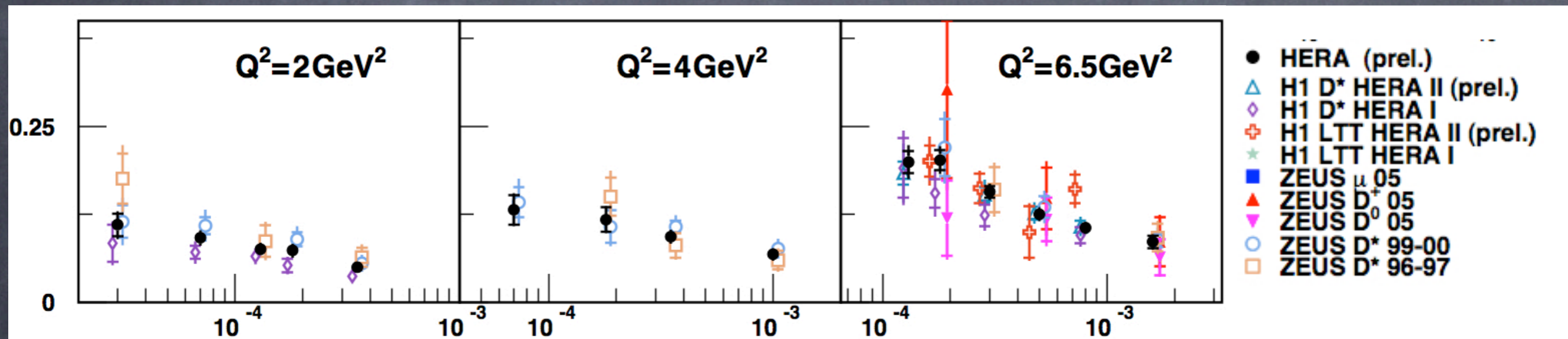
A. Cholewa, H1 collab. Meeting Orsay 2008

# Uncovered Topics in HFWG

## Reanalysis of $D^* \rightarrow K\pi\pi$ at HERA-I using DST7

Analysis (2-d cross sections) published Eur.Phys.J.C51:271-287 (2007)

phase space:  $1.5 < p_T(D^*) < 10$  GeV,  $|\eta(D^*)| < 1.5$



H1 HERAI  $D^*$  (◇) drive precision at  $Q^2 = 2 \text{ GeV}^2$ , significant precision at  $Q^2 = 6.5 \text{ GeV}^2$

TODO: reanalysis using DST7, extend phase space to  $p_T > 1.25$  GeV,  $|\eta| < 1.8$