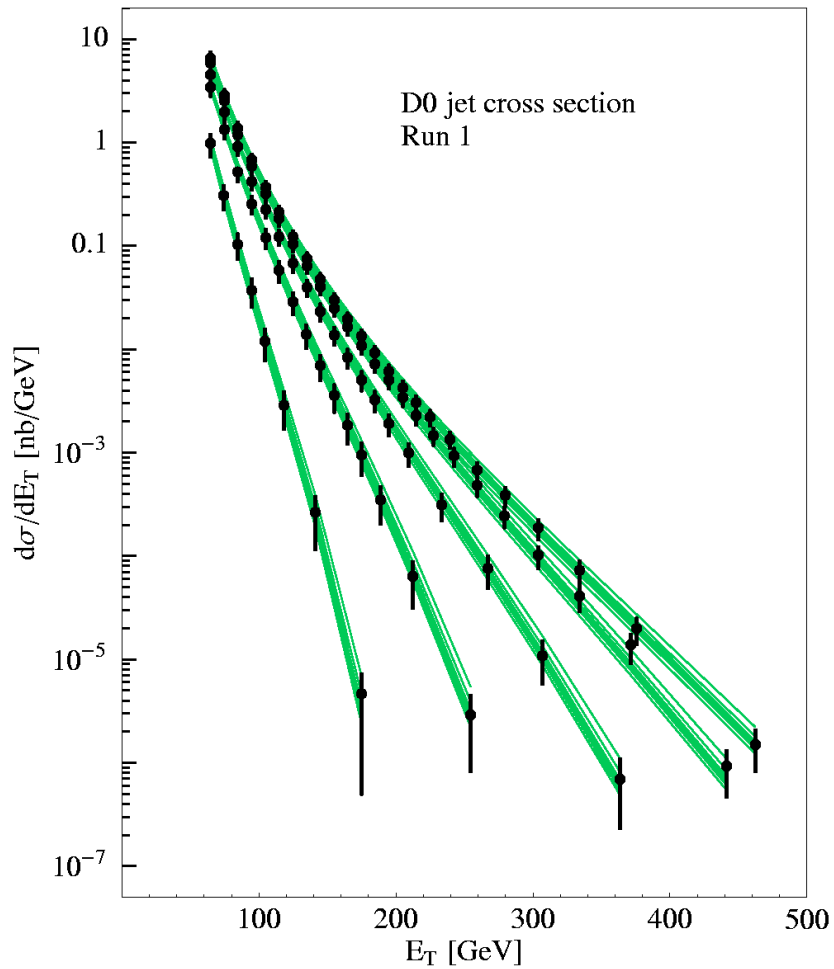


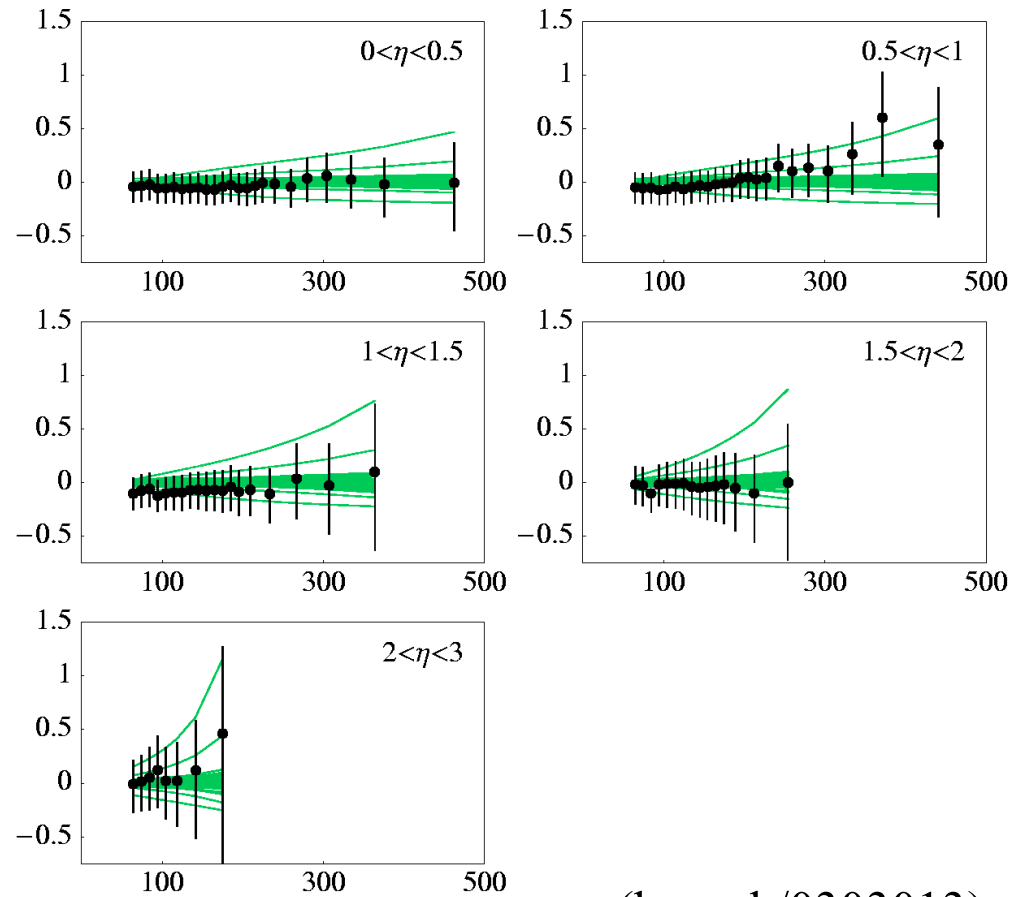
Cases

Inclusive jet production and the search for new physics

Inclusive jet cross section : D0 data and 40 alternate PDF sets

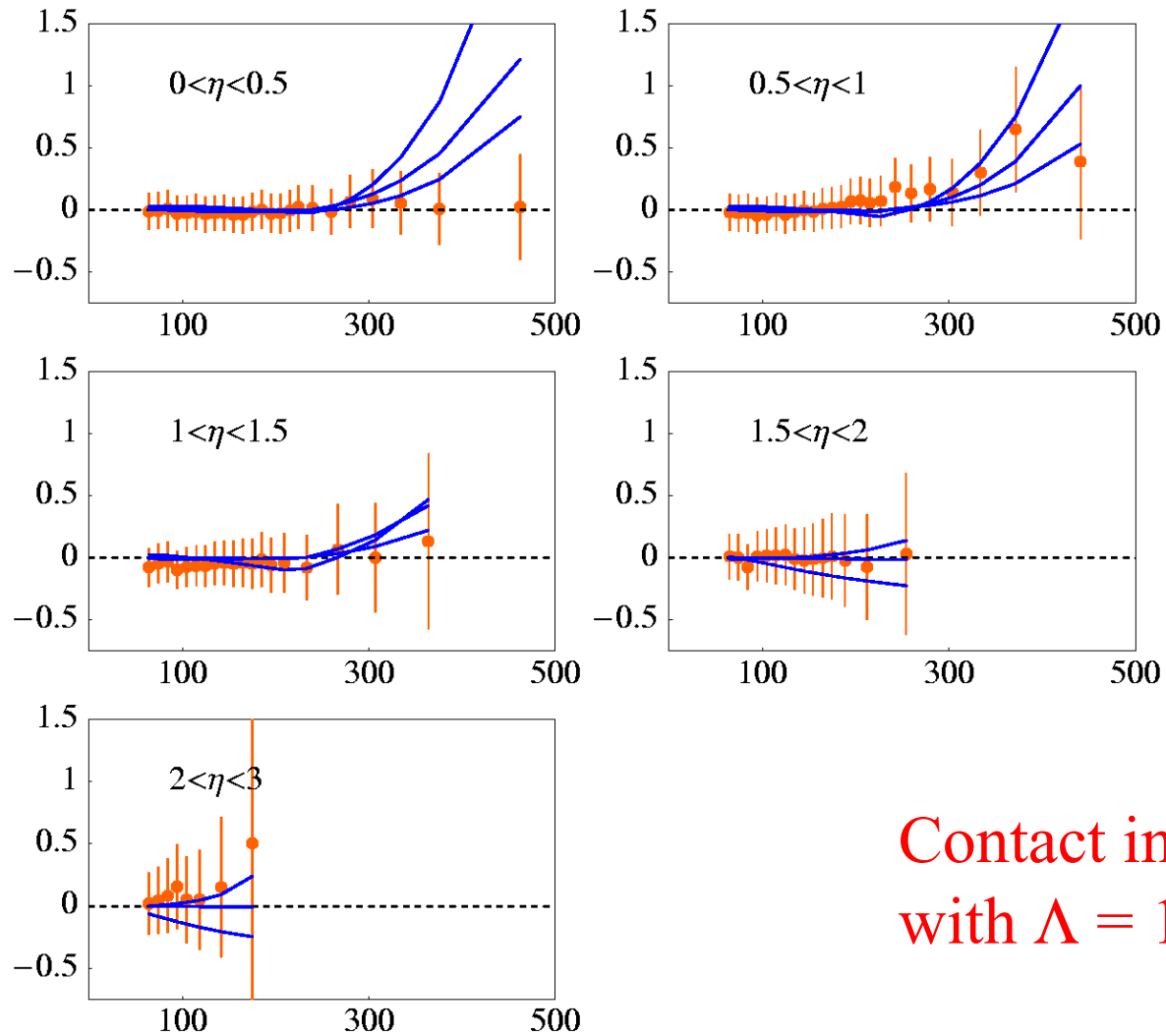


Fractional differences

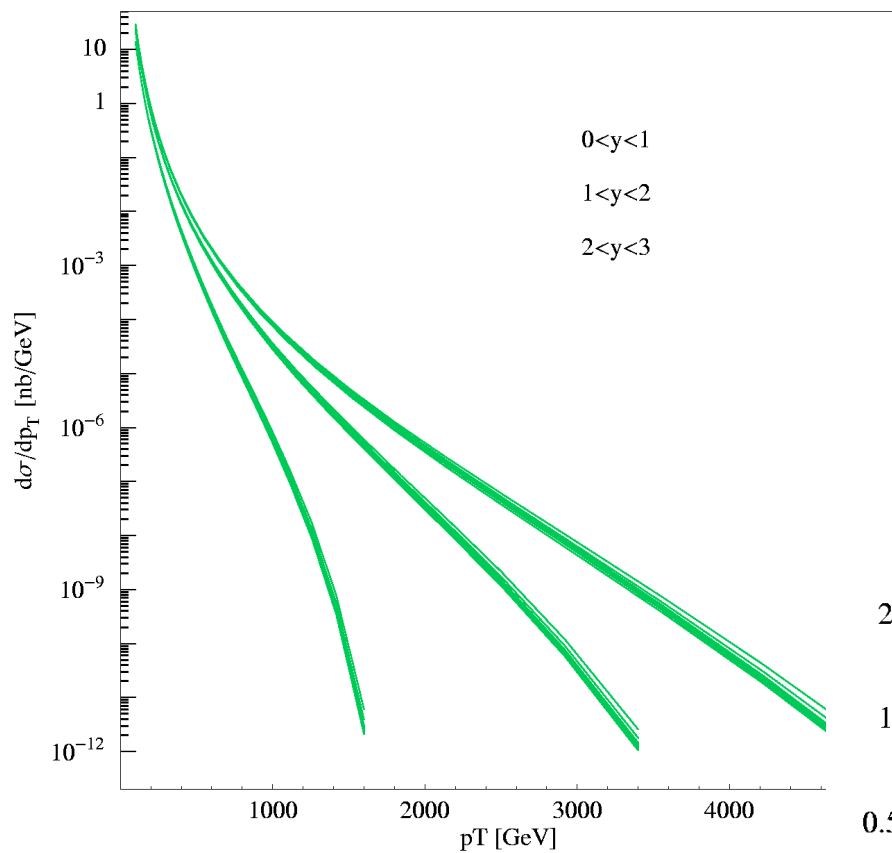


(hep-ph/0303013)

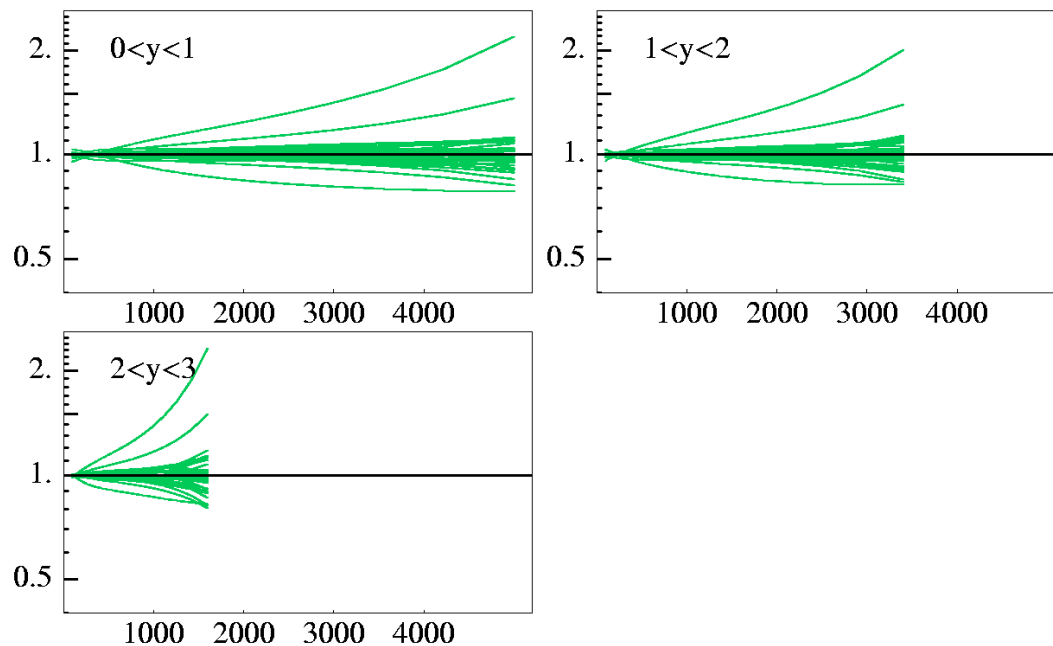
Is there room for new physics from Run Ib?



Contact interaction model
with $\Lambda = 1.6, 2.0, 2.4$ TeV



The inclusive jet cross section versus p_T for 3 rapidity bins at the LHC. Predictions of all 40 eigenvector basis sets are superimposed.



Strangeness asymmetry

The NuTeV Collaboration has measured the cross sections for ν -Fe and $\bar{\nu}$ -Fe to $\mu^+\mu^- X$. A significant fraction of the CS comes from νs and $\nu_{\text{bar}} s_{\text{bar}}$ interactions.

We have added this data into the global fit to determine

$$s(x, Q) \text{ and } \bar{s}(x, Q)$$

$$s^\pm(x) \equiv s(x) \pm \bar{s}(x) \text{ and } [s^\pm] = \int_0^1 s^\pm(x) dx$$

$$S^\pm(x) \equiv x\{s(x) \pm \bar{s}(x)\} \text{ and } [S^\pm] = \int_0^1 S^\pm(x) dx$$

Figure 1.
 Typical strangeness asymmetry $s^-(x)$ and the associated momentum asymmetry $S^-(x)$. The axes are chosen such that both large and small x regions are adequately represented, and that the area under each curve equals the corresponding integral.

[S-] values

A : 0.312×10^{-3}

B : 0.160×10^{-3}

C : 0.103×10^{-3}

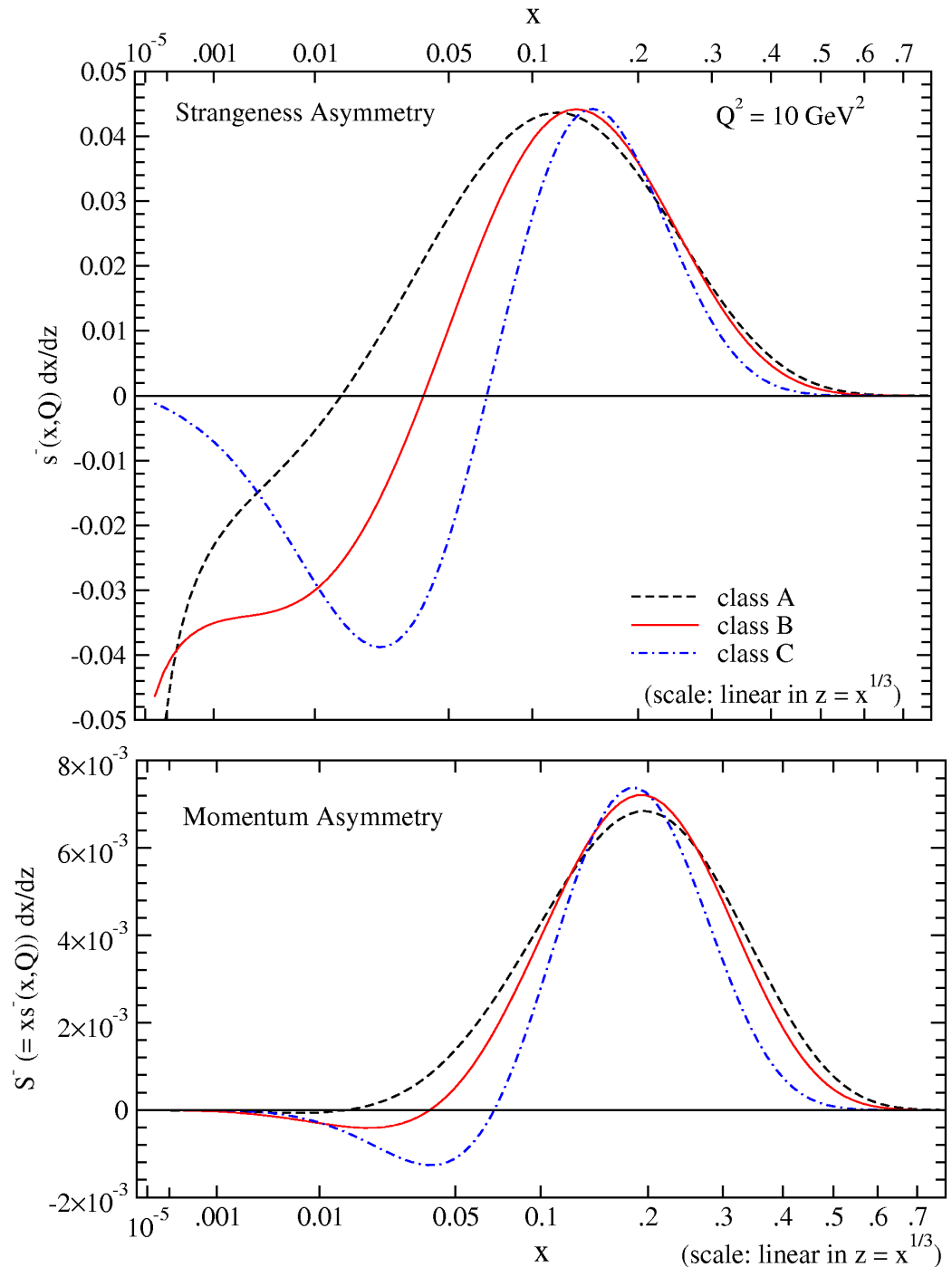
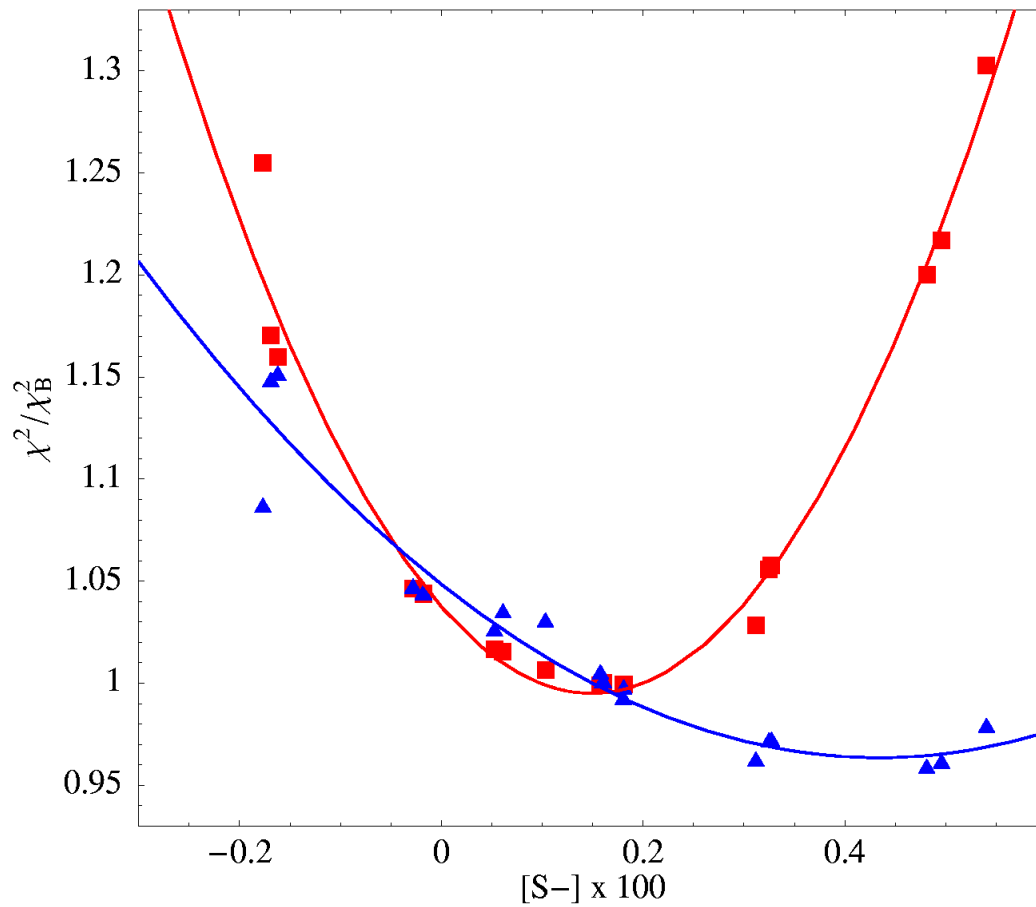


Figure 2.
Correlation between χ^2 values and $[S^-]$



Red: dimuon cross section

Blue: other data
sensitive to $s-s_{\text{bar}}$ (F3)

Figure 3.

Comparison of the $s^-(x)$ and $S^-(x)$ functions for three PDF sets:

our central fit "B" (dot-dash)

BPZ (blue)

NuTeV (red)

