Joey, and other co-authors on the jet paper,

Here are the values of χ^2/N for the DØand CDF jet data, for the cteq6m PDF's and the up/down PDF's of eigenvector 15.

file name	PDF set	D0 data		CDF data	
		χ^2/N	N.F.	χ^2/N	N.F.
cteq6m0	cteq6m	0.718	0.974	1.47	1.007
jet100	cteq6m	0.724	0.974	1.47	1.007
jet129	EV29	1.25	0.938	1.43	0.999
jet130	EV30	0.389	1.035	1.72	1.008

The calculations were done by Liang.

Comments

- Fits cteq6m0 and jet100 are really the same.
- The normalization factors (N.F.) were recalculated, i.e., *optimized* for each PDF set. So each fit is the best fit to the given PDF set. This seems to be the right comparison to make if we regard the 40 EV sets as alternate hypotheses for the PDF's. In other words, we are testing whether that hypothesis will fit the data, allowing the overall normalization of the data to vary.
- EV29 is the displacement along eigenvector 15 in the direction such that the gluon is soft, i.e., has smaller density at large x than cteq6m.
- EV30 is the opposite displacement along eigenvector 15, such that the gluon is hard, i.e., has higher density at large x. [In fact, it has a big bump for $x \gtrsim 0.5$ (for low Q).]

This is the question: Are the up/down eigenvector sets 29 and 30 reasonable alternate fits?

Looking at the χ^2 values may produce more heat than light in this case. Maybe we need to go the next step and look at the comparisons graphically.

Dan