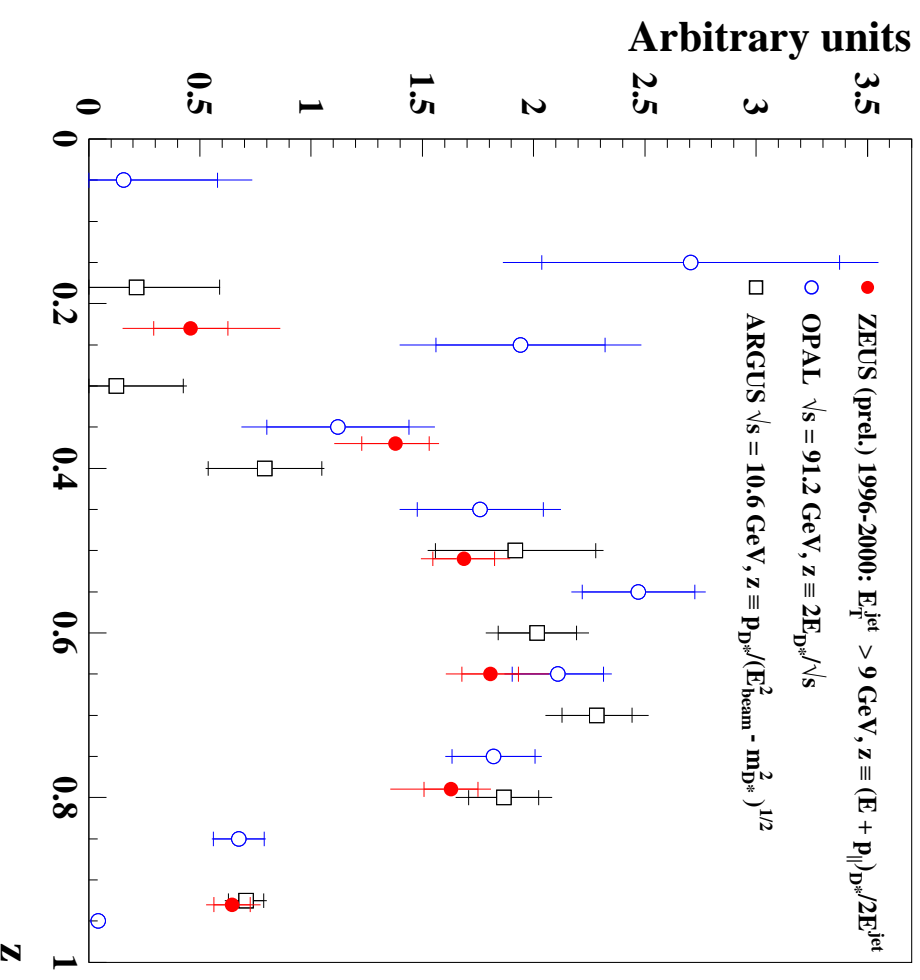


Improving our knowledge of charm fragmentation

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ZEUS

- Introduction and motivation
- Ideas for improving knowledge of charm fragmentation
- Outlook



Introduction and motivation

Need to describe charm fragmentation:

- for parametrisations in models used in NLO, MC, ...
- used for understanding QCD in hadronic collisions
- an uncertainty in predictions

Information on charm fragmentation:

- from e^+e^- experiments
- from many experiments (LEP, CLEO, PEP, PETRA,...)
- not exhausted in hadronic environments

Which experiments?

The following have measured $z \sim E_{D^*}/E_c$

Experiment	\sqrt{s} (GeV)	corrected?
ARGUS	10.6	YES
CLEO	10.55	YES
OPAL	91	NO
ALEPH	91	NO
TPC	29	YES
DELCO*	29	(YES)
TASSO	28 \rightarrow 46.8	YES
HRS	29	YES
JADE	29.9 \rightarrow 38.7	YES
ZEUS	> 18 (\sim 30)	YES

Consistency of all e^+e^- experiments?

ZEUS has a hadron-like environment; consistency with e^+e^- experiments?

Would be good to have measurements from the TeVatron.

*no values in paper or HEPDATA

Comparing data

Can compare different models with data and fit;

- consistency of data
- constrain the parametrisations

Put all data points in HZTOOL and compare with different models in JETSET.

Compare with NLO (more complicated).

Is there other data which could be used?

What else could be done?

Fit cross sections which are sensitive to the fragmentation, e.g. $p_T(D^*)$, $\eta(D^*)$, in DIS and PHP.

S. Schagen thesis; $\epsilon = 0.078^{+0.008}_{-0.010}$.

Could be improved? Use more recent data, Schagen only used DIS data.

Combine all information.

Outlook

Code up old results on fragmentation and check consistency with PYTHIA.

Comparison of e^+e^- and ZEUS results.

Similarly in NLO.

Fit cross sections sensitive to fragmentation.