

# HERA-LHC

## Charm and Bottom

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Experimental and theoretical overview

Measurements at HERA, open HF, quarkonium  
Prospects for LHC

Triggers for HF physics

Topics to be studied



# HF Triggers

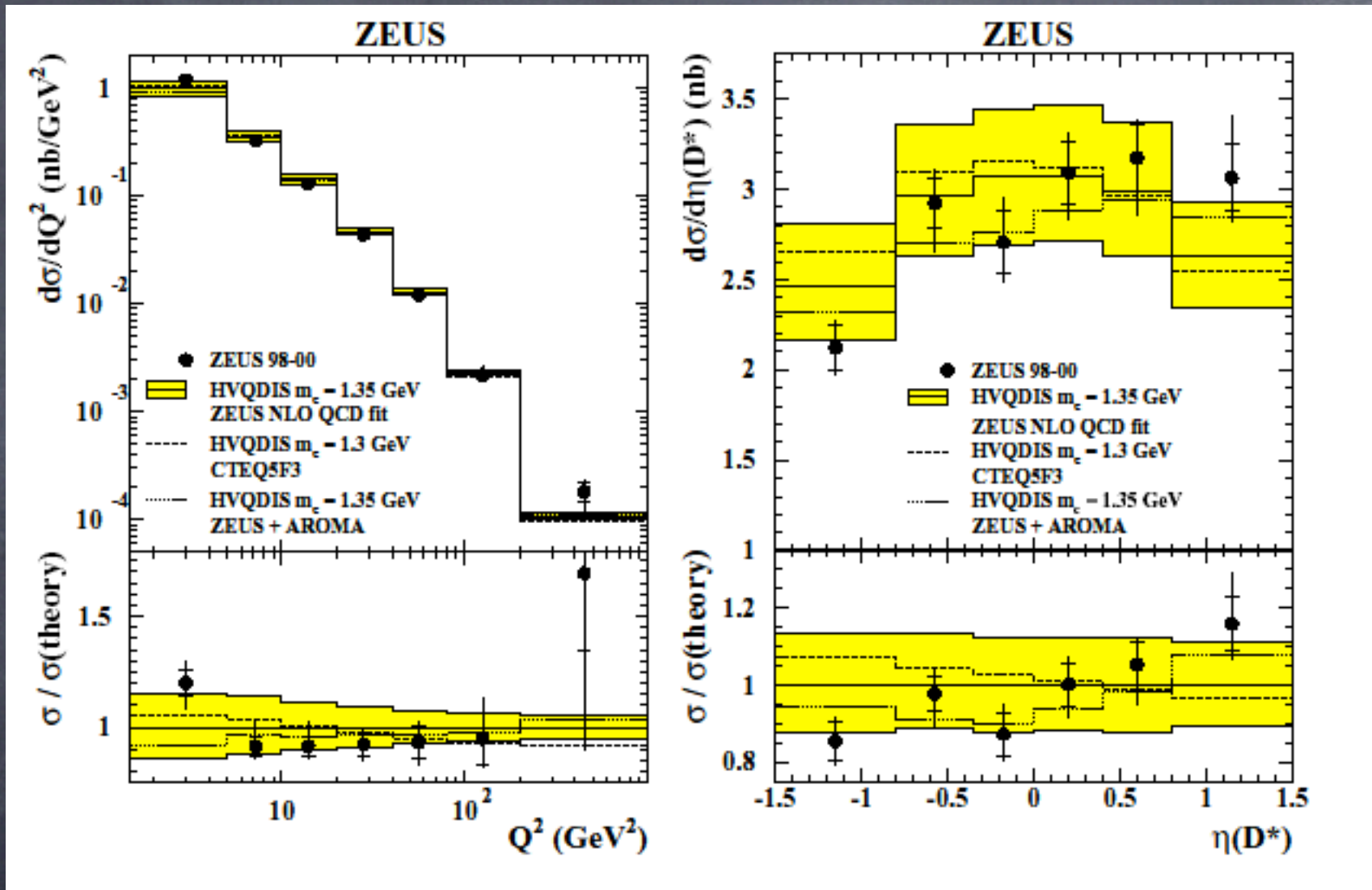
Comparisons of strategies in different environments of HERA and LHC machines

Main complaint: simulation of the background is unsatisfactory. Large uncertainties for LHC

Interesting cross-talk of two communities.  
Unclear if it will be pursued any further in the workshop

Minimum bias and underlying event for HF triggers  
Painful point for simulations. We hope other groups (MC? JETS?) will address this

# Poster plot:



Yes, HERA can measure HQ production, and the theory can describe it



Topics to address during the Workshop



Small- $x$ ,  $k_T$  factorization?

Not discussed in this meeting for lack of time

Interesting subject for follow-up meeting  
(e.g. for bottom cross section at LHC)



Correlations ( $c$ - $\bar{c}$  and  $b$ - $\bar{b}$ )

Present tools: NLO codes, MC

MC@NLO strongly asked for (demanded?) by  
HERA experimental community

Experimental methods: what and how to measure  
at HERA and LHC



MC tuning for HF using HERA data + JetWEB  
and predictions for LHC



MC group + LCG



# Heavy Quarkonium J/psi and Upsilon

## Review of HERA results

Not fully satisfying situation  
concerning comparisons with NRQCD theory and  
Tevatron data

Hopes for clarifying the situation before LHC starts?



# Validation of QCD techniques for HQ PDFs / Resummation



PDF group

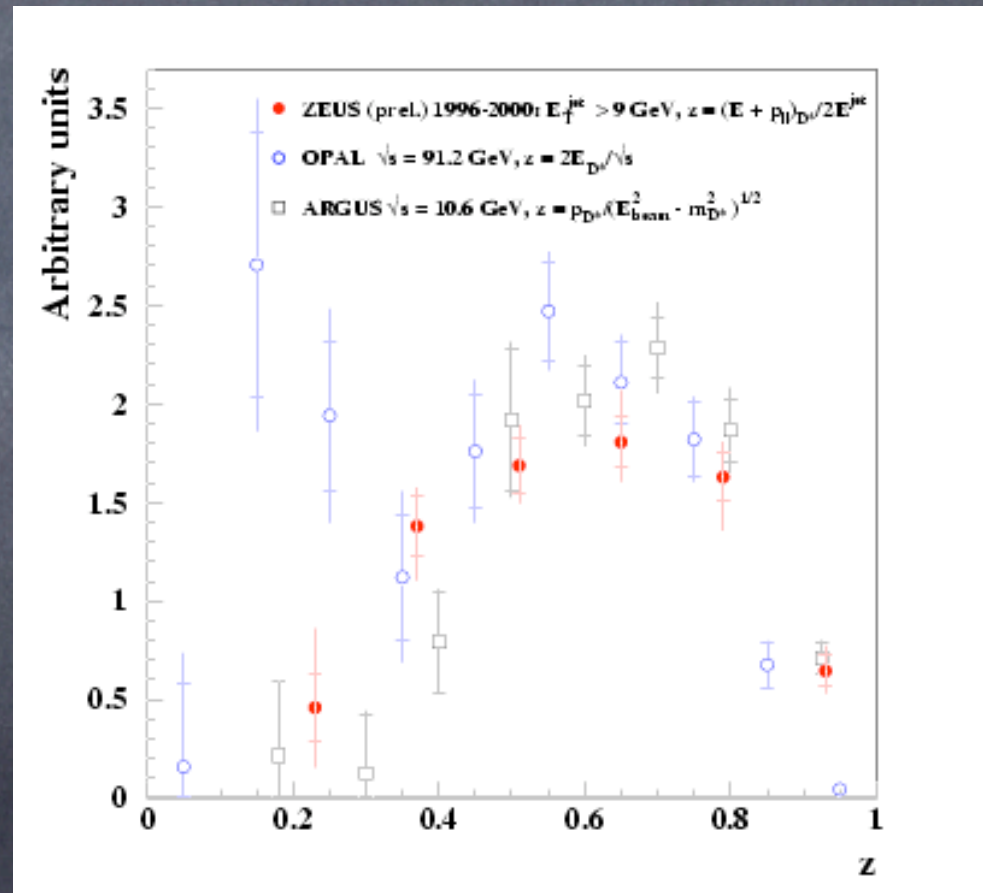
Ingredient: photon PDFs improvements



# Tests of fragmentation/validation in hadronic environment

HQ FF fitted at LEP and used at the Tevatron. Let's check at HERA too

Comparison of charm FF at ARGUS, ZEUS and OPAL





See you in DESY