

Welcome!

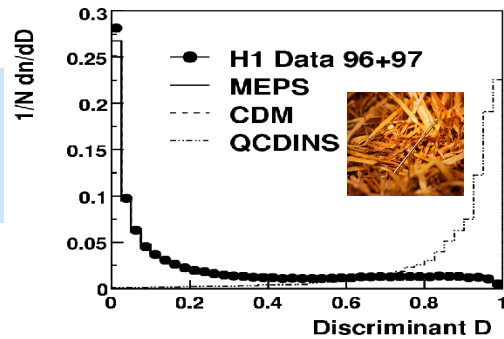
I. Terascale Statistics Tools Miniworkshop

19 june, 2008, DESY

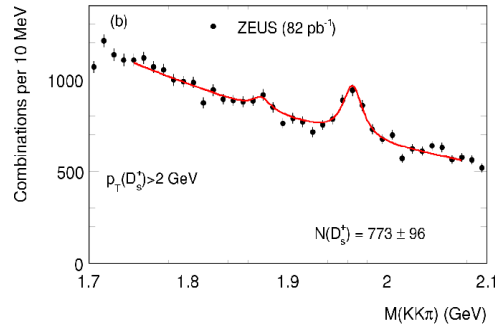
Olaf Behnke, Claus Kleinwort, Stefan Schmitt (all DESY)

Terascale Statistics Tools group: Main areas and goals

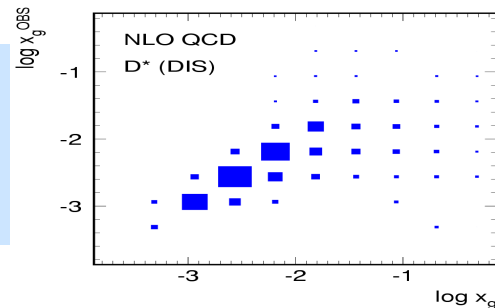
1. Optimal S/B separation



2. Signal searches, fits & limits



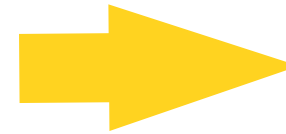
3. Data Corrections (unfolding etc.)



4. Systematic errors & other practical tasks

Source	Variation	Uncertainty [%]	
		Charm	Beauty
Impact parameter resolution	$\oplus 25 \mu\text{m}$ $\ominus 200 \mu\text{m}$	7	10
Jet axis ϕ direction	1° shift in ϕ	3	2
Track finding efficiency	$2\% \oplus 1\%$	3	8
uds asymmetry	$\pm 50\%$	1	6
HQ production model (PYTHIA)	resolved γ, p_i dependence	7	14
Fragmentation model	Peterson / Lund	1	2
Fragmentation fractions	PDG	0.5	1.6
Hadron lifetimes	PDG	0.1	0.3
Charged track multiplicities	MARK-III, LEP, SLD	1.5	4
Jet energy scale	2%	6	5
Trigger efficiency		5	5
Luminosity measurement		1.5	1.5
Total		14	22

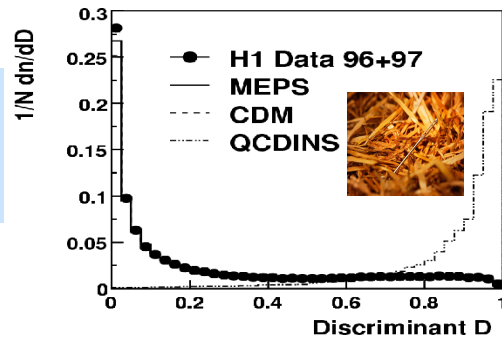
Phd thesis path



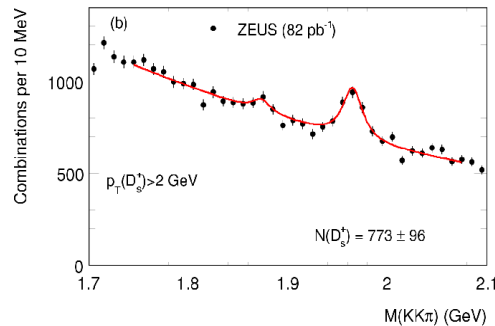
General Goal:
Provide
Tools, Support, Education
for Physics analyses
in ATLAS and CMS

Terascale Statistics Tools: Special expertise @ DESY

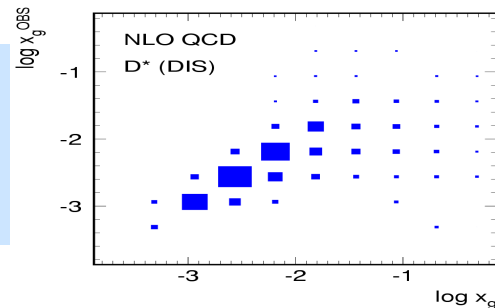
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✓ HERA analyses: experiences in multivariate analyses

✓ V. Blobel fitting package(s)

✓ HERA analyses: experiences in limit determination

✓ V. Blobel unfolding package(s)

✓ HERA analyses: Vast experience in practical problems of precision measurements: *from calibrations to PDF uncertainties*

Terascale Statistical Tools project overview

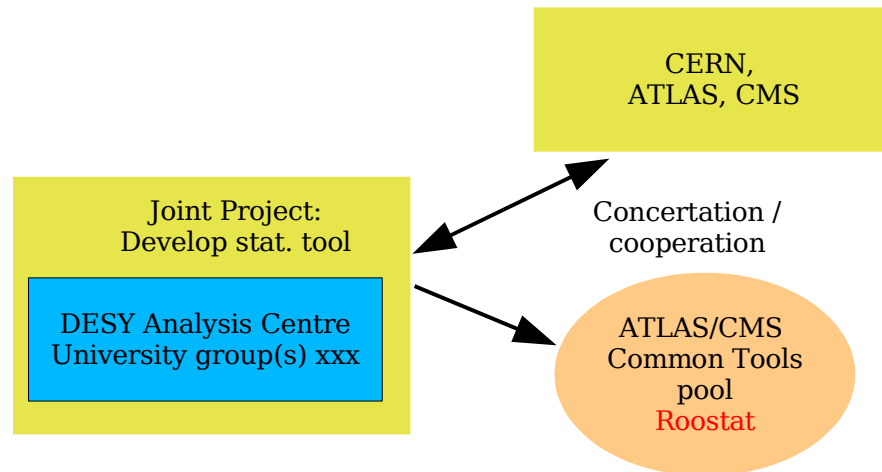
Mission:

- ✓ Provide tools/support education for
 1. Optimised S/B
 2. Signal searches, fits, limits
 3. Data corrections (Unfolding)
 4. Sys. Errors and other practical stat. problems/tasks in LHC physics analyses

Who:

- ✓ DESY Analysis Centre: C.K, S.S., O.B,
+ further dedicated manpower
cross connections to MC and PDF groups
- ✓ HEP groups @ DESY, universities
and other institutes in the alliance

1. Tools (development, validation)



- ✓ Identify topics/projects/
manpower and start!

2. Support / Help

- ✓ Install common platform(s) in analysis centre:
 - ✓ Moderated discussion forum for (all kind of) questions
 - ✓ Use mediawiki/twiki

3. Education

- ✓ Miniworkshop 19.6.
- ✓ School on stat. Tools 29.9.-2.10.
- ✓ Regular seminars, e.g. on how to treat pdf uncertainties

For Today:

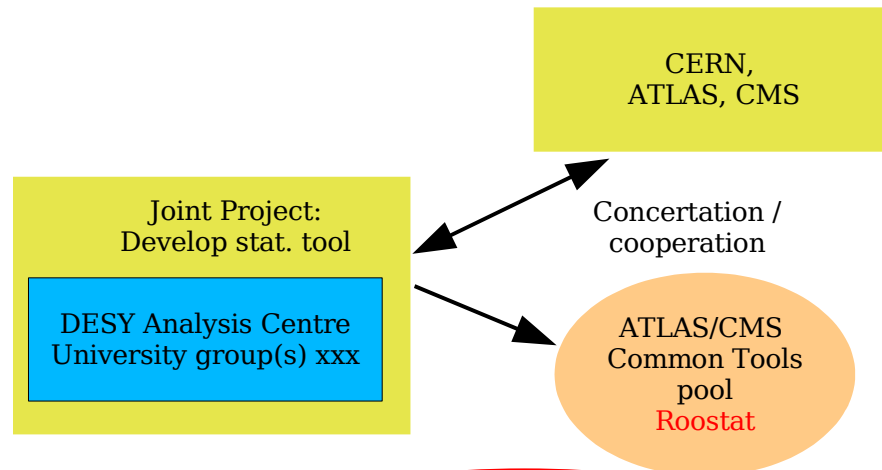
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