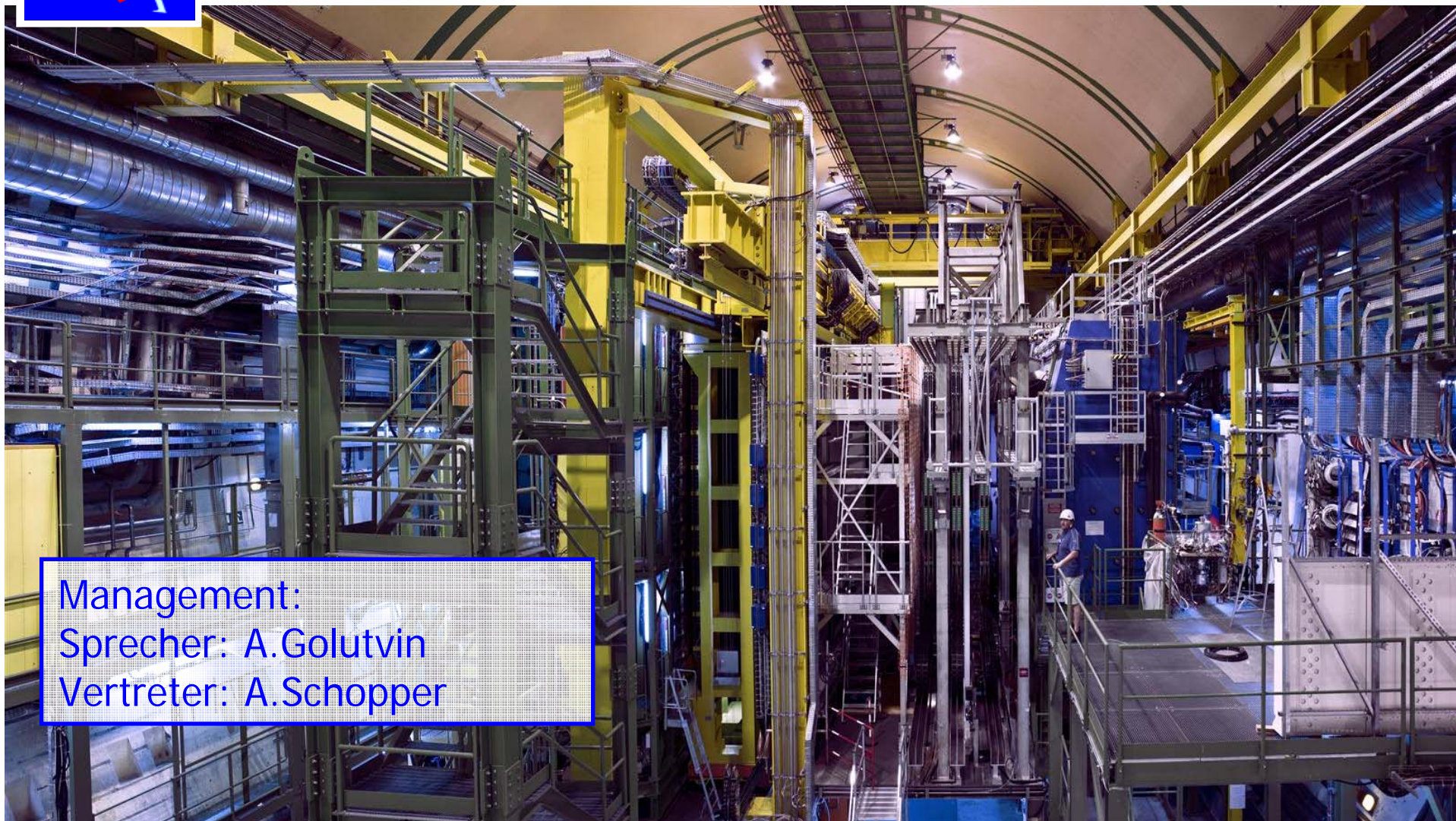




LHCb Experiment



Management:
Sprecher: A.Golutvin
Vertreter: A.Schopper

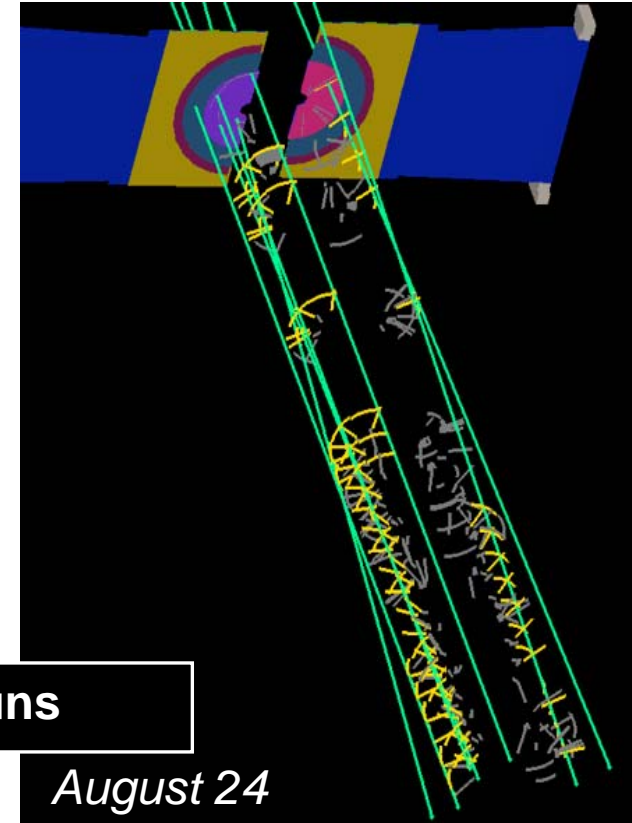
Deutsche Gruppen: Uni Dortmund MPI-K Heidelberg
 Uni Heidelberg

LHCb Status

- Detektor bis auf Myon-Lage M1 vollständig.
- > 95% aller Kanäle funktionsfähig.
- Auslese bei 70 kHz Triggerrate stabil.
- 24h / 7 Tage Schichten ab August

Shutdown:

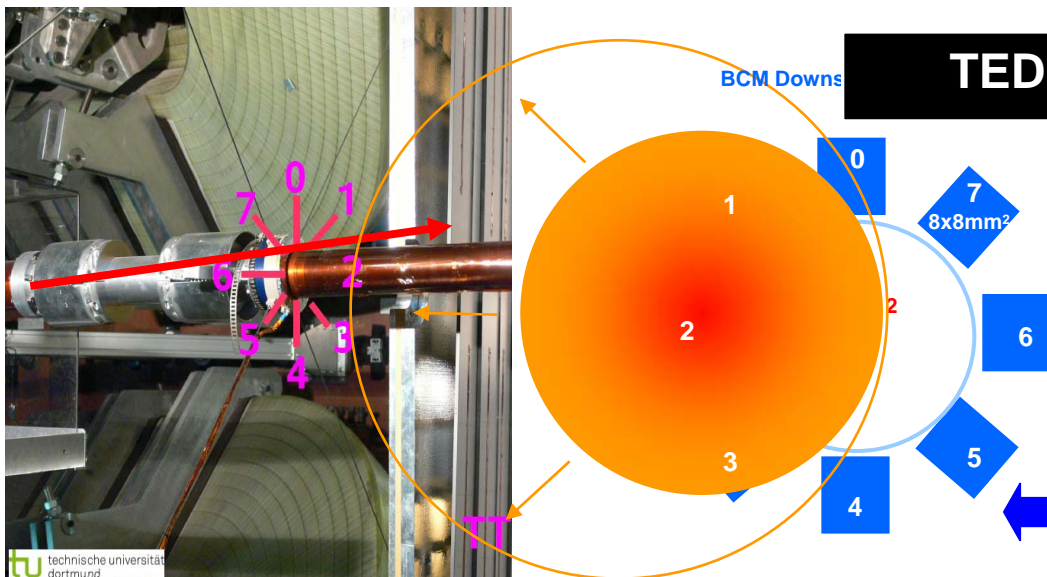
- Installation von M1
- Online Farm 400 CPUs → 1600 CPUs



August 24

LHC Injection Tests:
Beam dump on collimator

Beam Conditions Monitor (DO)



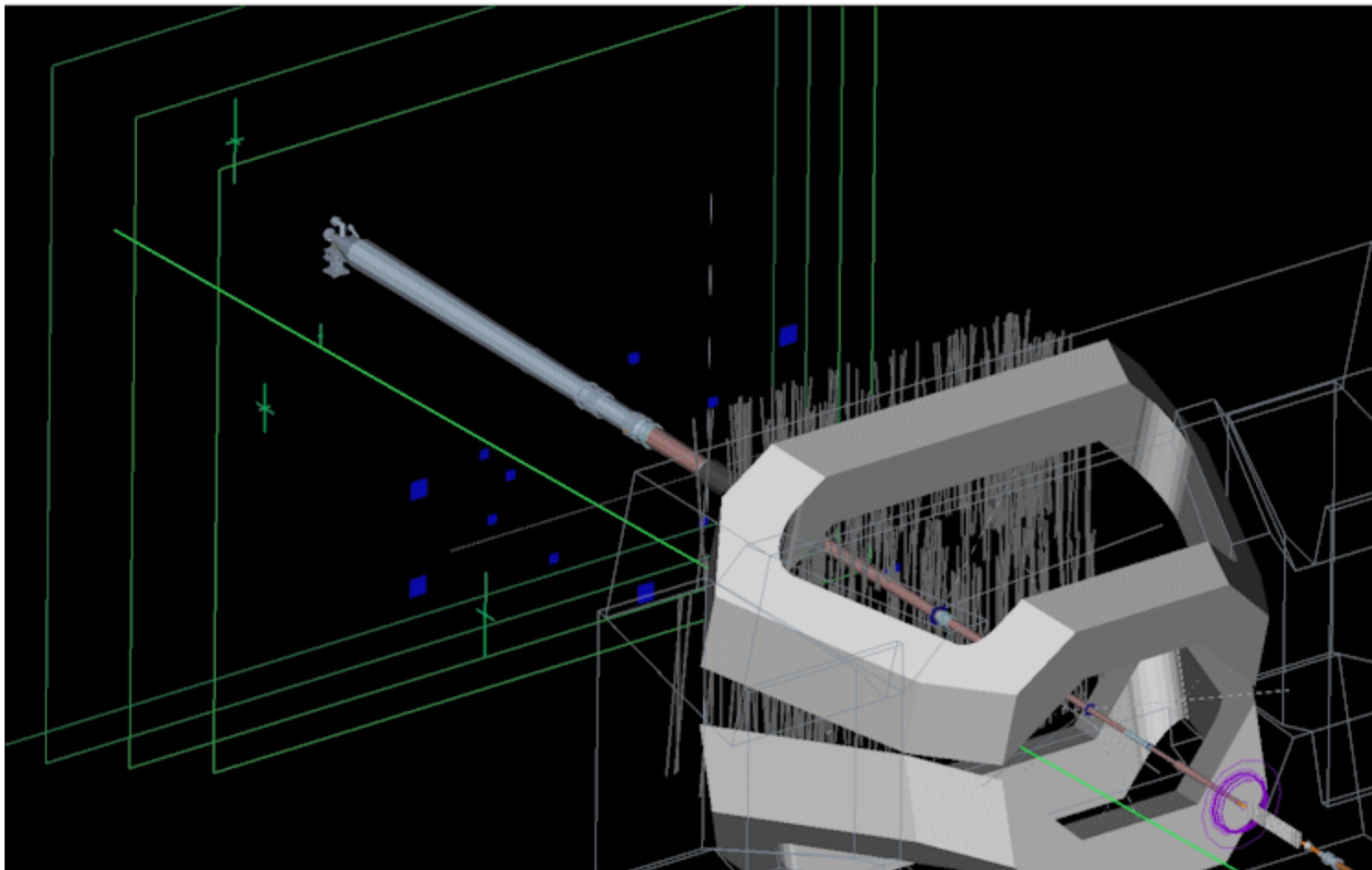
TED Runs



10. September

Strahl aus der korrekten Richtung

10.9. 2008 11:32:26 +50ns



Algorithmus für Spurrekonstruktion: *M. Schiller (HD)*



Deutsche Gruppen

	Postdocs++	Dokt.	Dipl.	
DO	4 + 2 ₂₀₀₉	3	6	gestiegenes Interesse mit LHC Start !
HD	10 + 1 ₂₀₀₉	5	7	
MPI	4	3	0	

Emmy
Noether →

Detektoraufbau

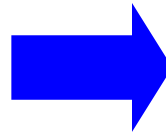
Ausleseelektronik *HD+DO, MPI*

Kammerbau *HD*, BCM *DO*

Installation

OT *S. Bachmann, HD*

IT *H. Voss, MPI*



Personal++

Detektorbetrieb *HD+DO, MPI*

DQ Monitoring *HD*

Spurrekonstruktion *HD*

Alignment & Kalibration *HD+MPI*

Trigger HLT *DO, HD*

Computing *HD+MPI+DO*

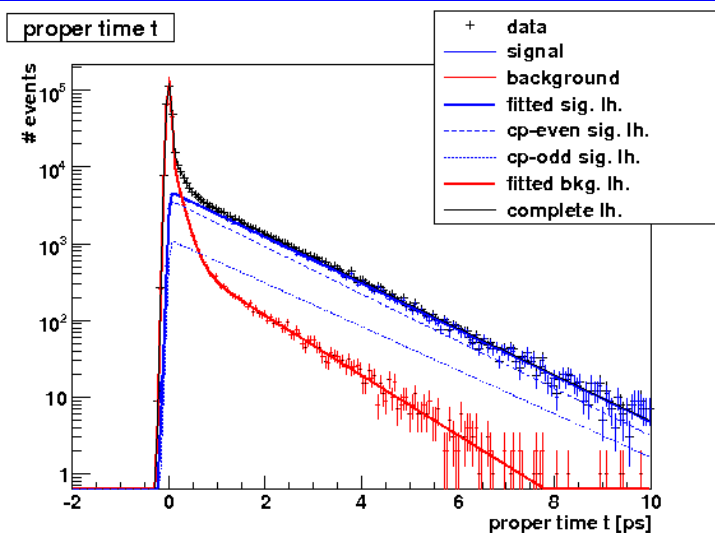
Analyse *MPI+HD, HD+DO*

Vernetzung: Gemeinsame Arbeitsthemen (+),
Gemeinsame Meetings (wöchentl),
Workshops: 2007, 2008 2009, LHCb-D + "befeundete B Theoretiker"



Gemeinsame Analysen *HD+DO*

B_s Mischungsphase in $B_s \rightarrow J/\psi \phi$



Fitter: *Langenbruch / HD*

$c\tau$ Auflösung ($D_s \pi$ Ereignisse)

Schiller / HD

Winkelakzeptanz $B_s \rightarrow J/\psi K^*$

Linn / HD

Pinguin-Zerfälle $B_s \rightarrow \phi \phi$

Schleich / DO

erste LHCb
Schlüsselmessung

Tagging-Kalibration

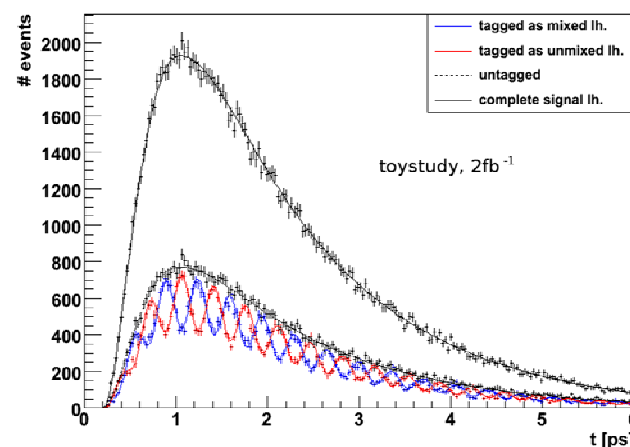
$B^+ \rightarrow J/\psi K^+$ tagger

Wishahi / DO

$B^0 \rightarrow D \pi$ tagger & Δm_d

Brambach / DO

$B_s \rightarrow D_s \pi$ tagger & Δm_s



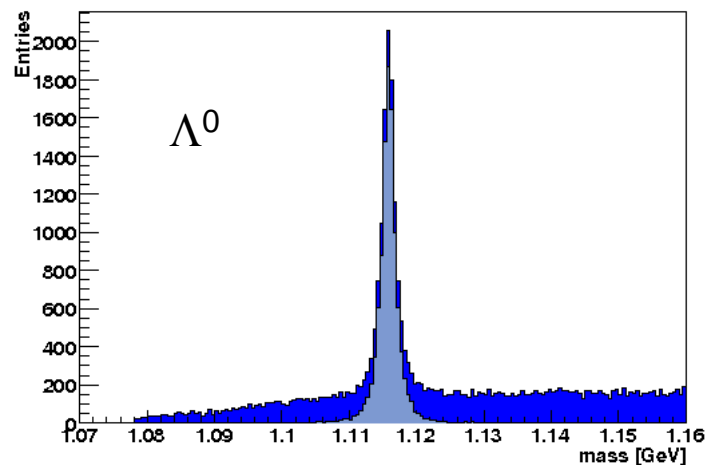
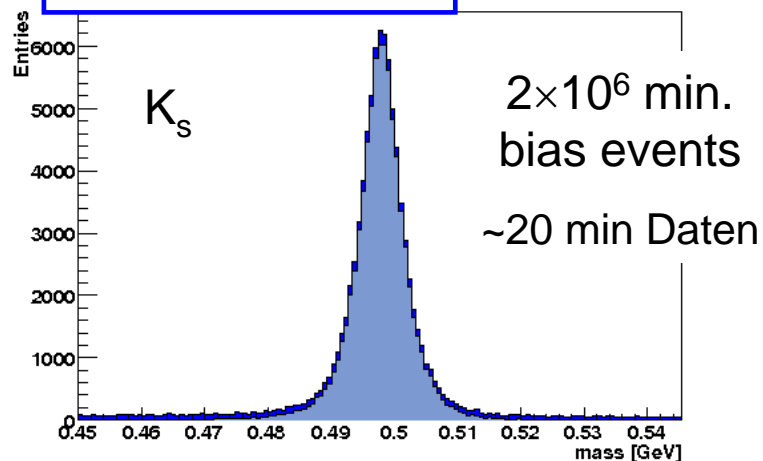
Wandernoth / HD



Analysen mit ersten Daten *MPI+HD*

Soft QCD – Strangeness, Charm MC-Tuning

K^0, Λ^0 Produktion



M. Rothley / HD

O. Aquines / MPI

M. Britsch / MPI

J. Marks / HD

D. Popov / MPI

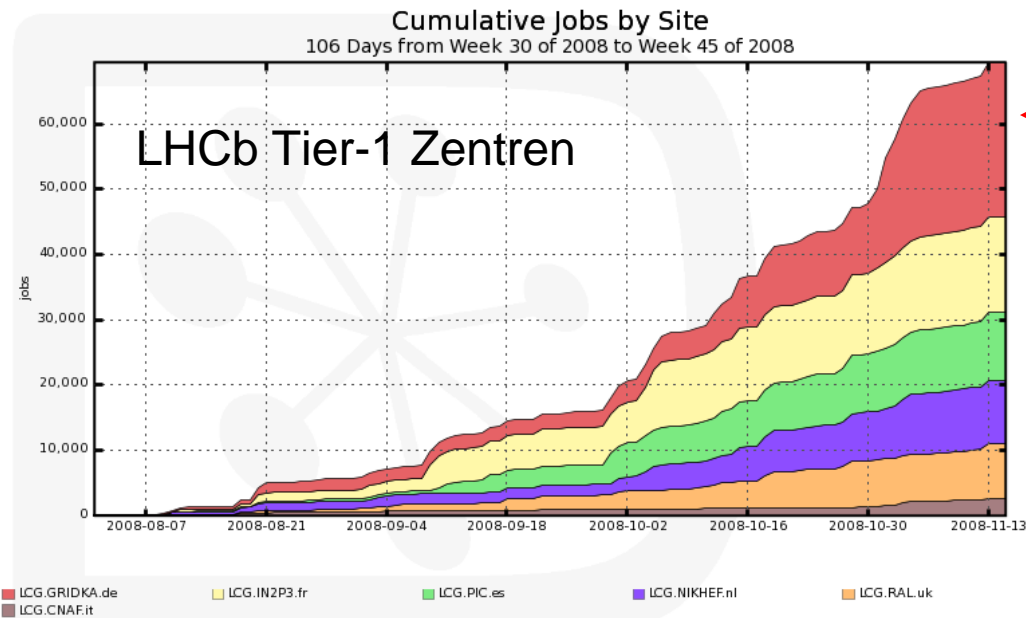
M. Rothley / HD

M. Schmelling / MPI

LHCb Convenor: *M. Schmelling*



Computing



GridKa

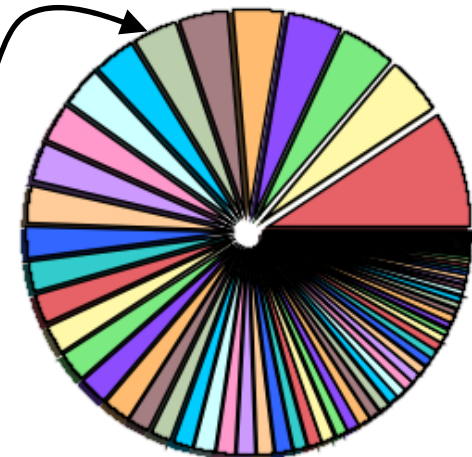
in 2008 sehr gute
Performance für LHCb

Jahr	CPU / kSI2k	Disk / TB	Tape / TB
2008	310	171	143
2009	812	460	512
2010	1123	542	977

CPU days used by Site (Sum: 7447)

DESY LHCb Tier-2 online
(seit Mitte des Jahres)

LHCb Monte Carlo Produktion
(CPU Tage)





National Analysis Facility



Configuration: DC06 - phys-v2-lumi2
 Event type: 10000000 - incl_b

Datatype	Dbase	Step 3	Step 2	Step 1	Events	Size	NAF		Your events
							Events	Size/State	
DIGI 1	v30r14		Boole - v12r10	Gauss - v25r10	850840	232.9 Gb	998	281 Mb	300
SIM 1	v30r14			Gauss - v25r10	3982	2.9 Gb	-	-	-
DST 1	v30r14	Brunel - v30r17	Boole - v12r10	Gauss - v25r10	851837	301.6 Gb	3985	1.4 Gb	3000
Combined									
SIM 1+DIGI 1	v30r14		Boole - v12r10	Gauss - v25r10	1995	2.0 Gb	-	-	-
DIGI 1+DST 1	v30r14	Brunel - v30r17	Boole - v12r10	Gauss - v25r10	850840	534.1 Gb	998	1.7 Gb	-
SIM 1+DIGI 1+DST 1	v30r14	Brunel - v30r17	Boole - v12r10	Gauss - v25r10	1995	2.7 Gb	-	-	-

Request/lock/unlock:

DIGI 1#v30r14#DIGI 1#Boole - v12r10#SIM 1#Gauss - v25r10 1000 Request/Lock Get .opts Get .xml

Please select the package: DAVINCI User: Alexey Zhelezov

DAVINCI

Version	Platform	Status
v20r3	slc4_ia32_gcc34_dbg	Request to install
	slc4_ia32_gcc34	Request to install
	slc4_amd64_gcc34_dbg	Request to install
	slc4_amd64_gcc34	Installed
v20r2	slc4_ia32_gcc34_dbg	Request to install
	slc4_ia32_gcc34	Request to install
	slc4_amd64_gcc34_dbg	Request to install
	slc4_amd64_gcc34	Request to install
v20r1	slc4_ia32_gcc34_dbg	Request to install
	slc4_ia32_gcc34	Request to install
	slc4_amd64_gcc34_dbg	Request to install
	slc4_amd64_gcc34	Request to install
v20r0	slc4_ia32_gcc34_dbg	Request to install
	slc4_ia32_gcc34	Request to install
	slc4_amd64_gcc34_dbg	Request to install
	slc4_amd64_gcc34	Installed
v19r14	slc4_ia32_gcc34_dbg	Request to install
	slc4_ia32_gcc34	Request to install

- Interaktive / Batch Jobs
- LHCb Analyse Environment installiert
- Tools für Datenimport und automatische Software Installation
- Web-Portal zur Registrierung seit 20. Oktober:
(11 registrierte User (aus allen 3 Gruppen))

A.Zhelezov / HD



LHCb Upgrade - $10 \text{ fb}^{-1}++$

LHCb Upgrade - EoI



100 fb^{-1}

- Run at **10×** design luminosity: 2×10^{33}
(does not depend on LHC lumi)

- Needs detector and trigger upgrade:
40 MHz readout electronics

CERN/LHCC/2008-007

Physics

- CPV in B_s mixing (tree and penguins)
- CKM angle γ with $\sim 1^\circ$ precision
- Chiral structure of $b \rightarrow s$ decays
- Lepton flavor violation in $\tau \rightarrow \mu\mu\mu$

Interest of German Groups R&D Program

- 40 MHz readout electronics for
silicon detectors *MPI*,
tracking chambers *HD+DO*
- Fiber-Tracker *DO*

No commitments yet !