

News from DESY.

Joachim Mnich

Plenary ECFA
CERN, November 2010



Beschleuniger | Forschung mit Photonen | Teilchenphysik

Deutsches Elektronen-Synchrotron
Ein Forschungszentrum der Helmholtz-Gemeinschaft



> Stern-Gerlach-Medaille 2011

Günter Wolf (DESY)

Günter Wolf erhält die Stern-Gerlach-Medaille für seine Arbeiten auf dem Gebiet der Hochenergiephysik. Er hat die Entwicklung des Gebiets und die Etablierung des Standardmodells der Elementarteilchen durch wichtige Arbeiten und Entdeckungen nachhaltig geprägt.

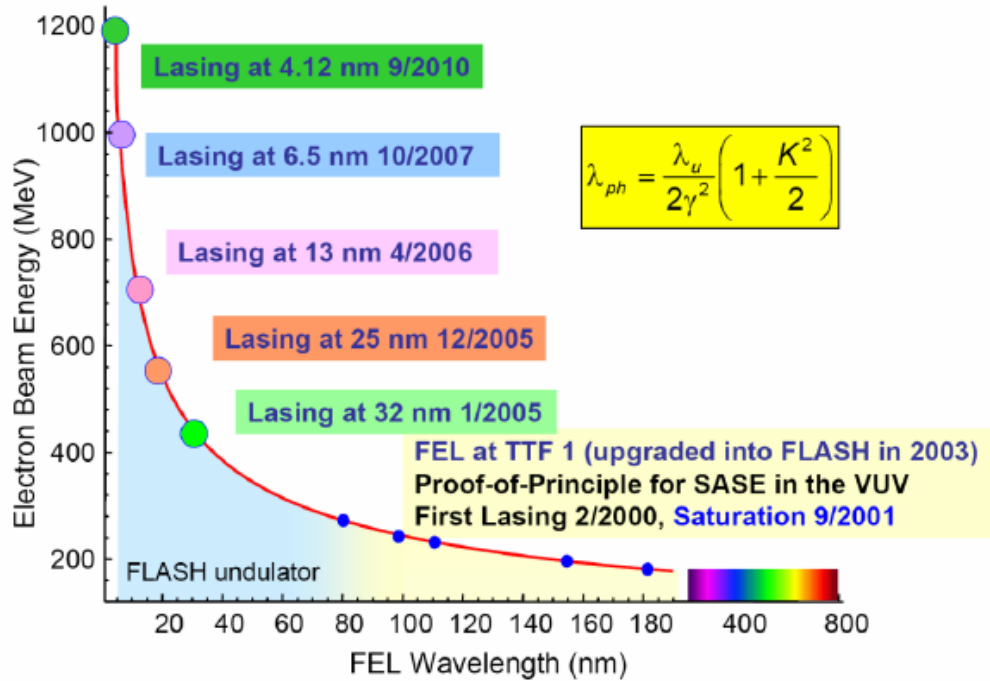
- > **Most prestigious German prize in experimental physics**
- > **Awarded by the German physical society (DPG)**



Status XFEL



FLASH



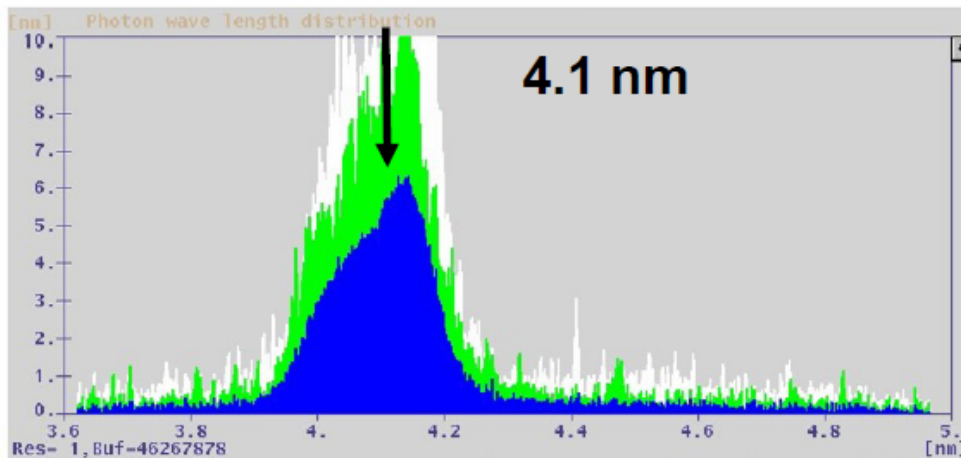
> FLASH upgrade:

- Beam energy 1.2 GeV
new acc. module with <31.5 MV/m>
- 3rd harmonic RF system
smoother tuning of FEL process

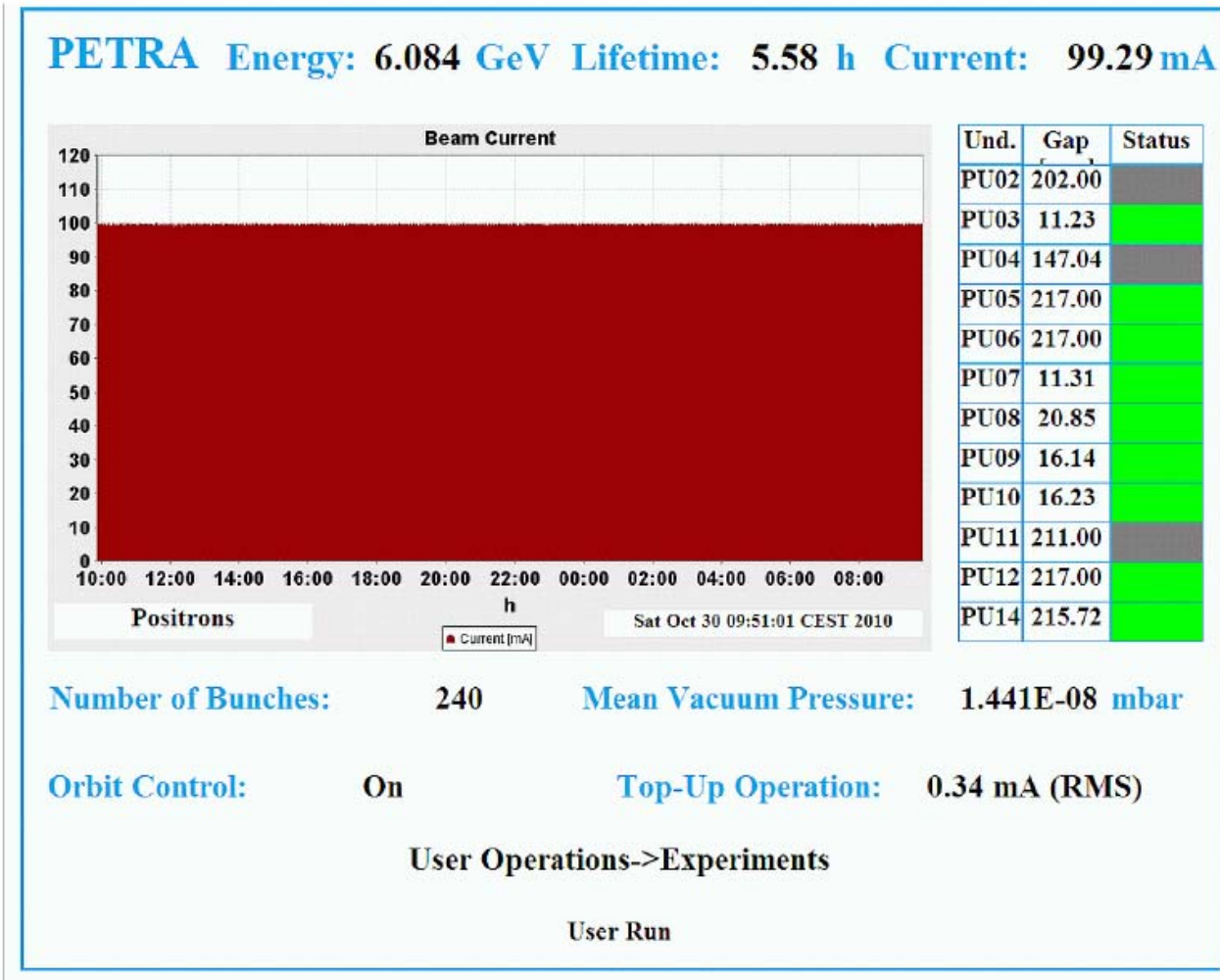
> 4.1 nm (water window)

> FLASH II project

- Doubling # of beam lines
- Project approved and financed by Helmholtz



> Regular user operation since mid 2010



All design specifications reached

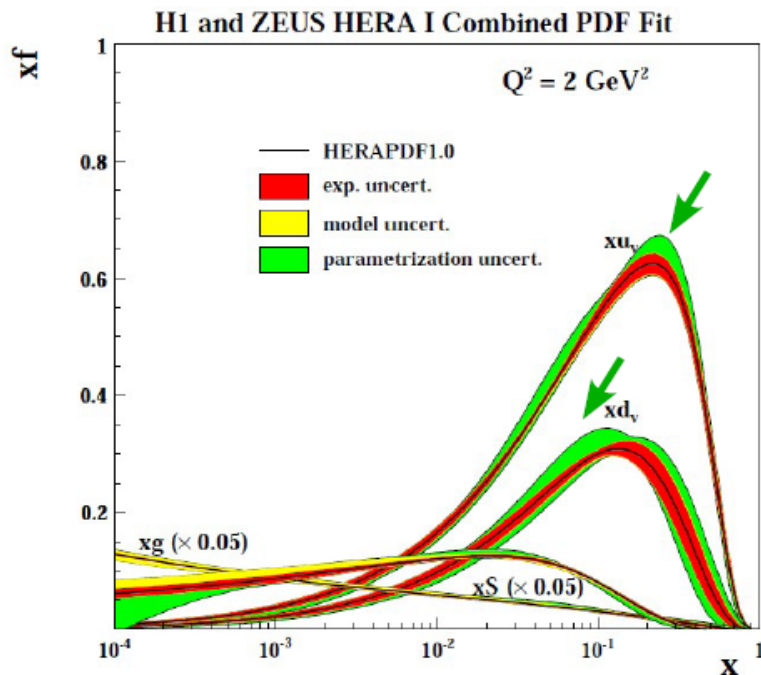
Availability ~95%

Analysis of HERA Data

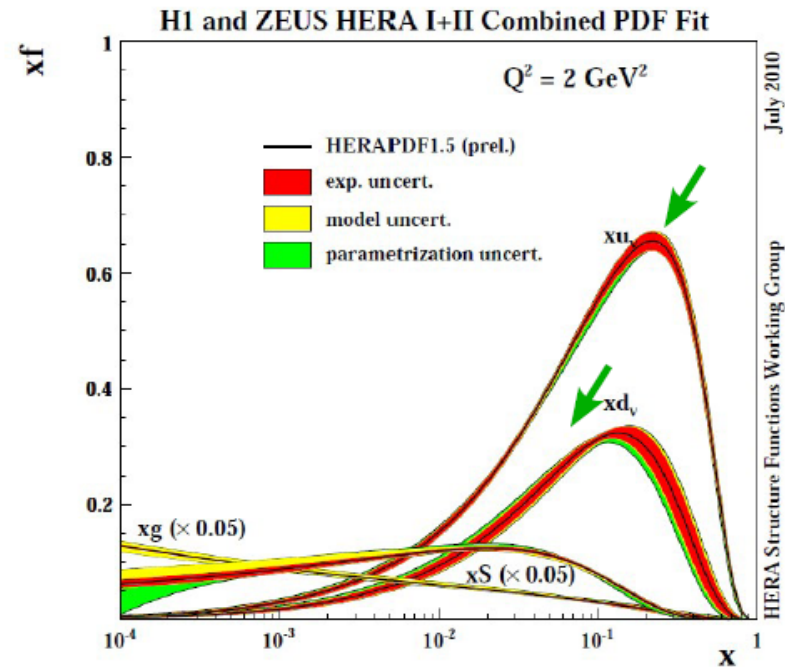
- > HERA II
- > Combination of experiments

≈ 40 more papers per experiment (H1/ZEUS)

HERAPDF1.0

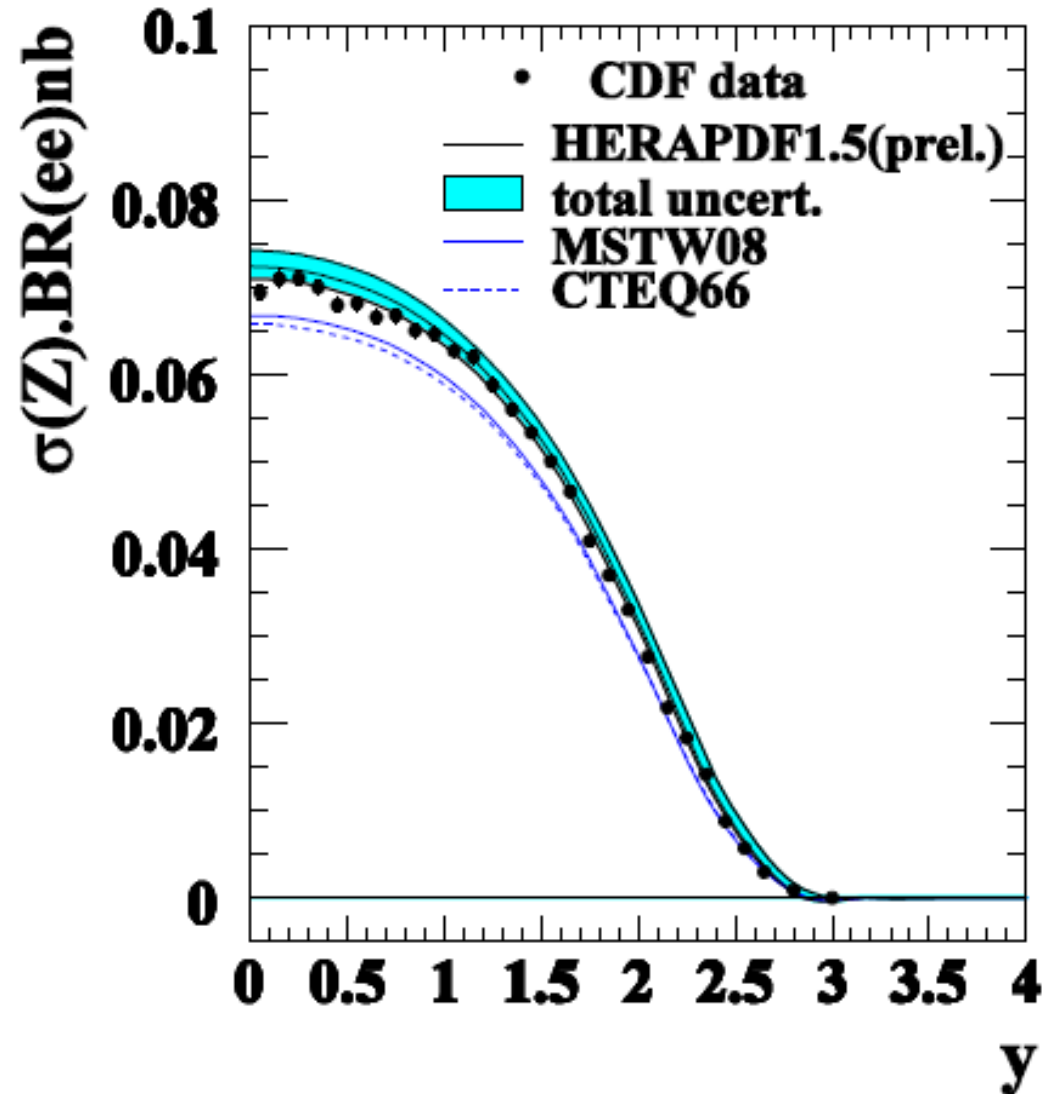


HERAPDF1.5

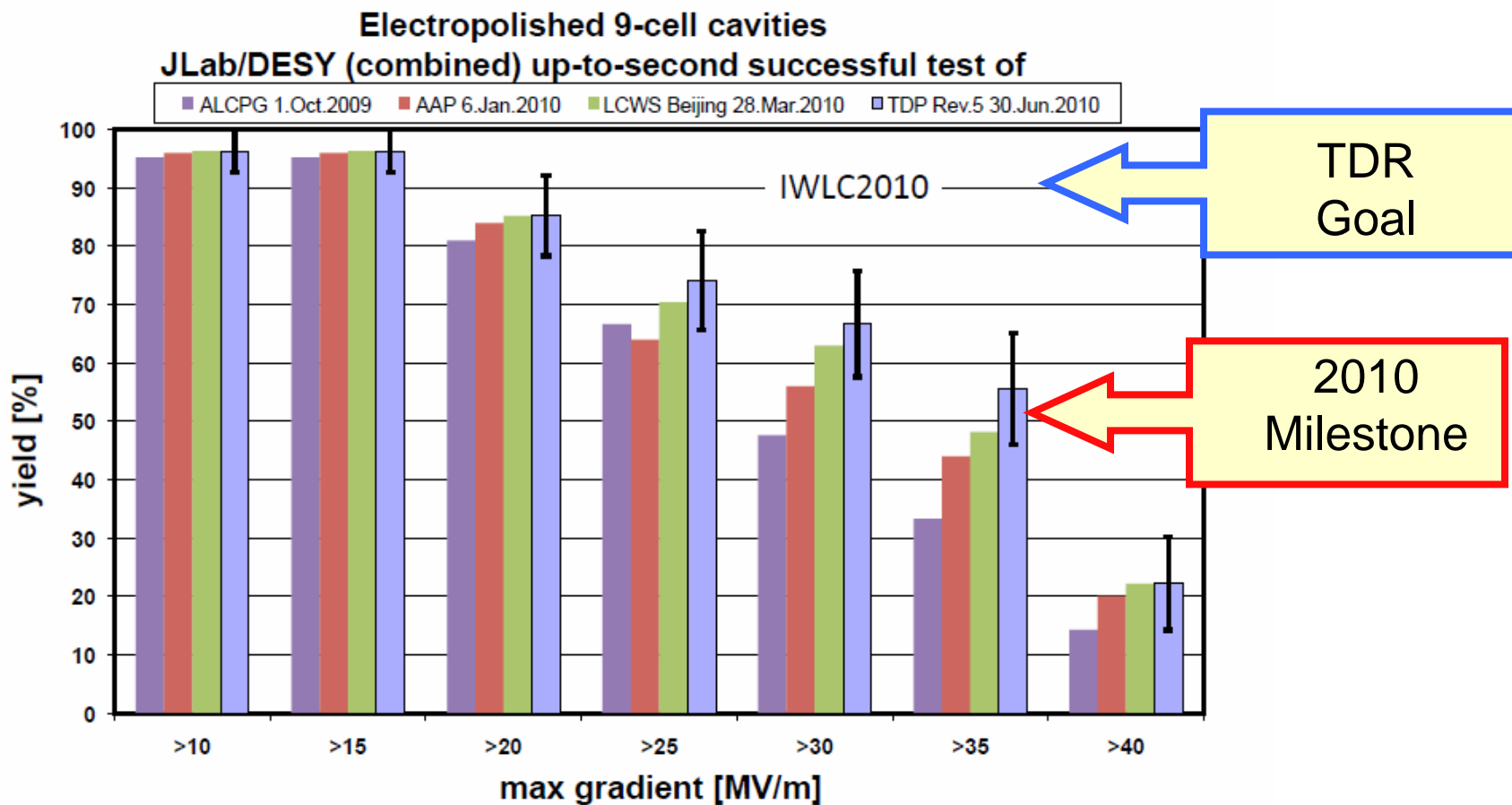


Impact on Hadron Colliders

- > Example:
Z production at the Tevatron
- > HERAPDF1.5 accurately describe CDF data
- > PDF4LHC workshop
 - next meeting at DESY
November 29

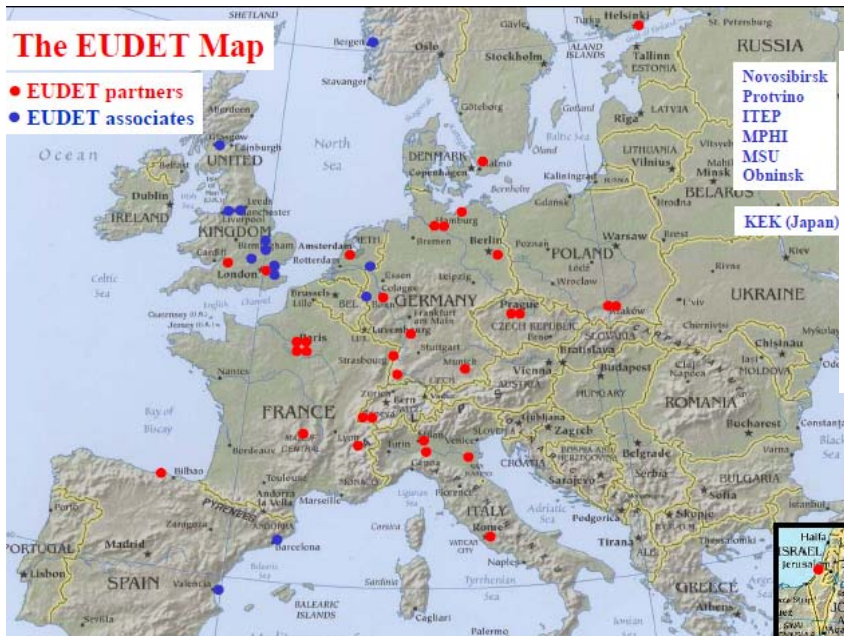


Cavity gradient milestone achieved

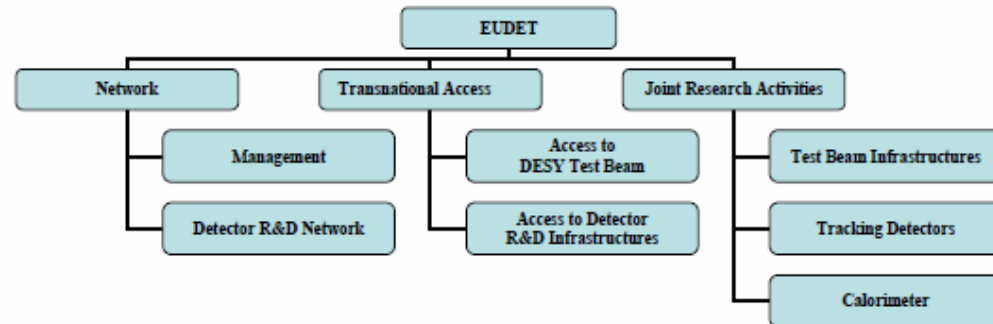


EUDET project 2006-2010:

- collaboration in Europe & beyond
- > 30 institutes



- well defined structure



- plus additional funds
- 7 M€ in total

- > All goals achieved
- > EUDET is a big success

Helmholtz-Alliance „Physics at the Terascale“

- > 3 years of building up new structures is paying off:
- > Virtual detector lab → sLHC
- > NAF and distributed Tier-2 → LHC analysis
- > Analysis Centre
 - Schools & workshops
 - Projects on statistics, Monte Carlo, phenomenology, SUSY/BSM fitting, ...

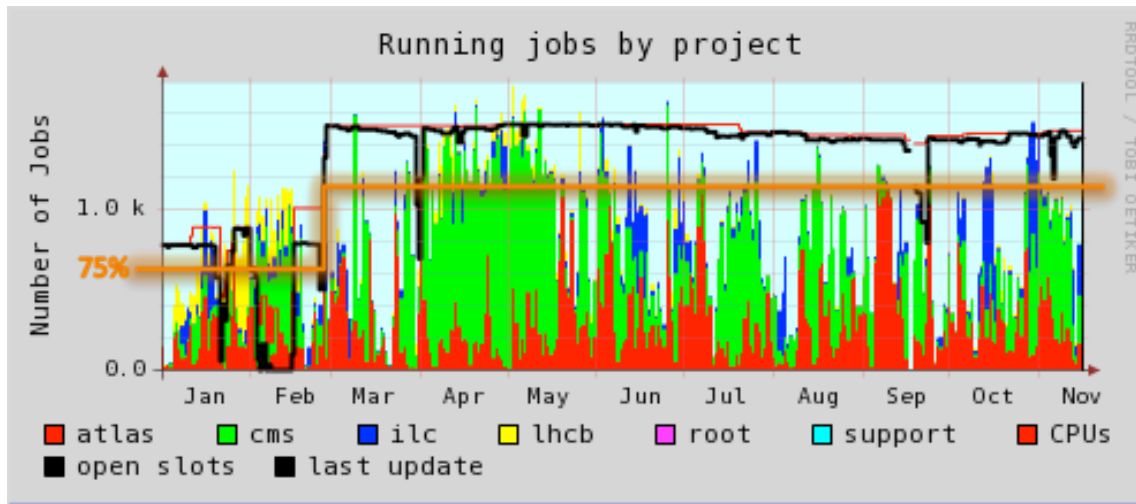
The poster is titled "Analysis Centre Schools and Workshops 2011" and is set against a background of a blue sky with clouds. At the top, it features the "Helmholtz Alliance" logo and the text "PHYSICS AT THE TERASCALE". Below this, a list of events is presented on white rectangular cards that appear to be floating or attached to a structure. The events listed are:

- Single-Top Workshop
14-15 February 2011
DESY, Hamburg
terascale.de/singletop2011
- Introductory School to the Terascale
21-25 February 2011
DESY, Hamburg
terascale.de/intro2011
- Monte Carlo School 2011
14-17 March 2011
DESY, Hamburg
terascale.de/mc2011
- Computer Algebra & Particle Physics 2011
20-25 March 2011, DESY, Zeuthen
terascale.de/capp2011
- School on Statistics 2011
21-24 March 2011, DESY, Hamburg
terascale.de/statistics2011
- Gen4 Training
10-13 May 2011
DESY, Zeuthen
terascale.de/gen42011
- Standard Model Benchmark Processes at the LHC
15-17 June 2011
DESY, Zeuthen
terascale.de/lmcandes2011

At the bottom of the poster, the URL http://www.terascale.de/schools_and_workshops is provided. The DESY logo is located in the bottom right corner of the poster.

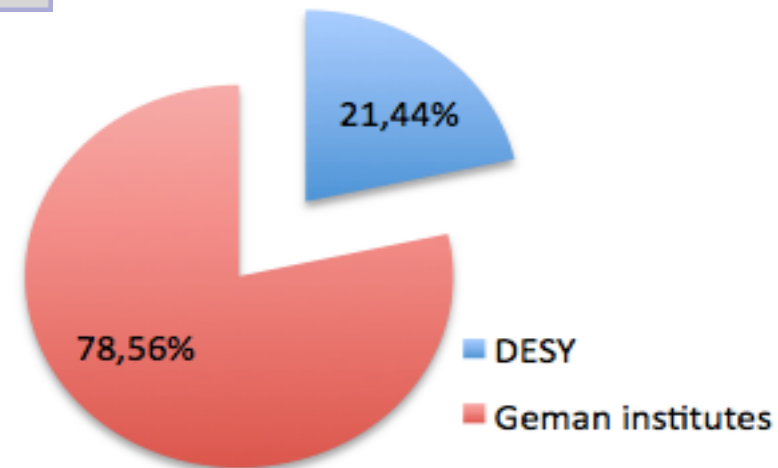
Helmholtz Alliance “Physics at the Terascale”

> Example: National Analysis Facility (NAF)



Need to upgrade
for next year!

NAF CPU usage



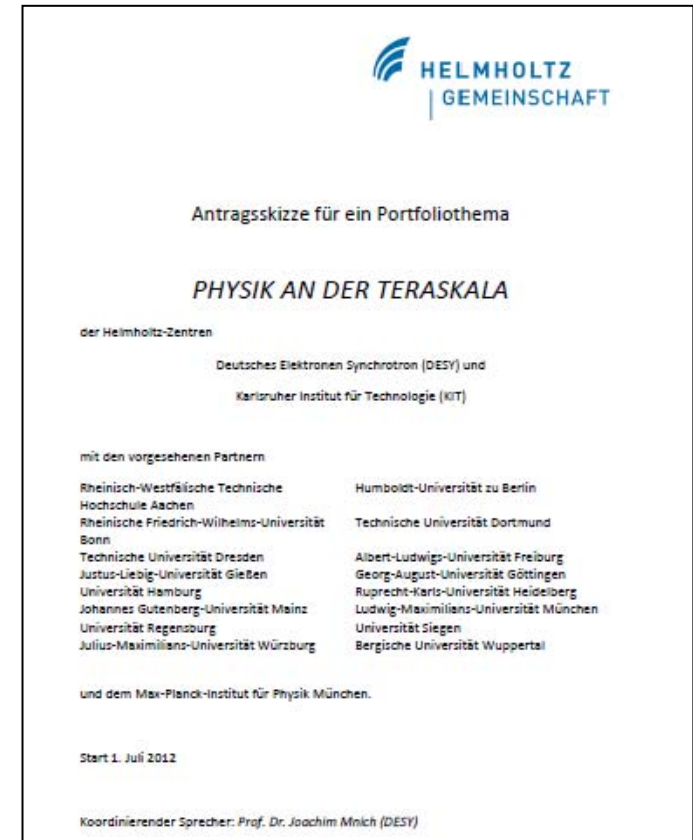
Recommended limit: < 75%, peaks up to 90%

> NAF well used by German institutes

- ≈ 80% universities
- ≈ 20% by DESY scientists

Future of the Alliance

- > **DESY 5-years evaluation result**
 - Alliance highly appreciated by reviewers
 - Specific recommendation
“... prioritised plans for continuing the Alliance should be described in a joint report by DESY and the university groups and submitted to the Helmholtz President by the end of 2011.”
- > **Very successful mid-term evaluation**
- > **Status: sketch submitted**
- > **Annual Workshop of Alliance early December**
- > **Start preparing full proposal**

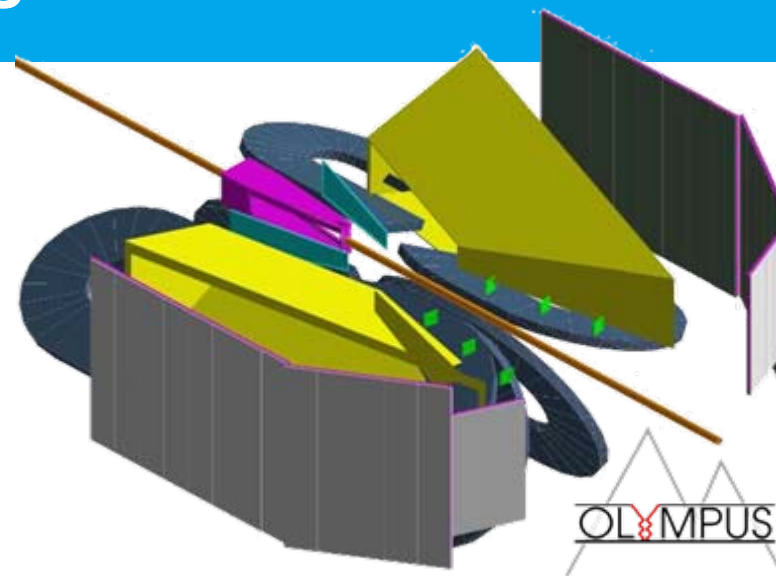


OLYMPUS Experiment at DORIS

- > Measurement of elastic cross section ratio e^+p vs e^-p
- > Use BLAST detector (MIT)

Schedule:

- > 2010 set-up experiment at DESY
- > 2011 commissioning
- > 2012 data taking (3 months)



Arizona State University, USA

DESY, Hamburg, Germany

Hampton University, USA

INFN, Bari, Italy

INFN, Ferrara, Italy

INFN, Rome, Italy

Massachusetts Institute of Technology, USA

St. Petersburg Nuclear Physics Institute, Russia

Universität Bonn, Germany

University of Colorado, USA

Universität Erlangen-Nürnberg, Germany

University of Glasgow, United Kingdom

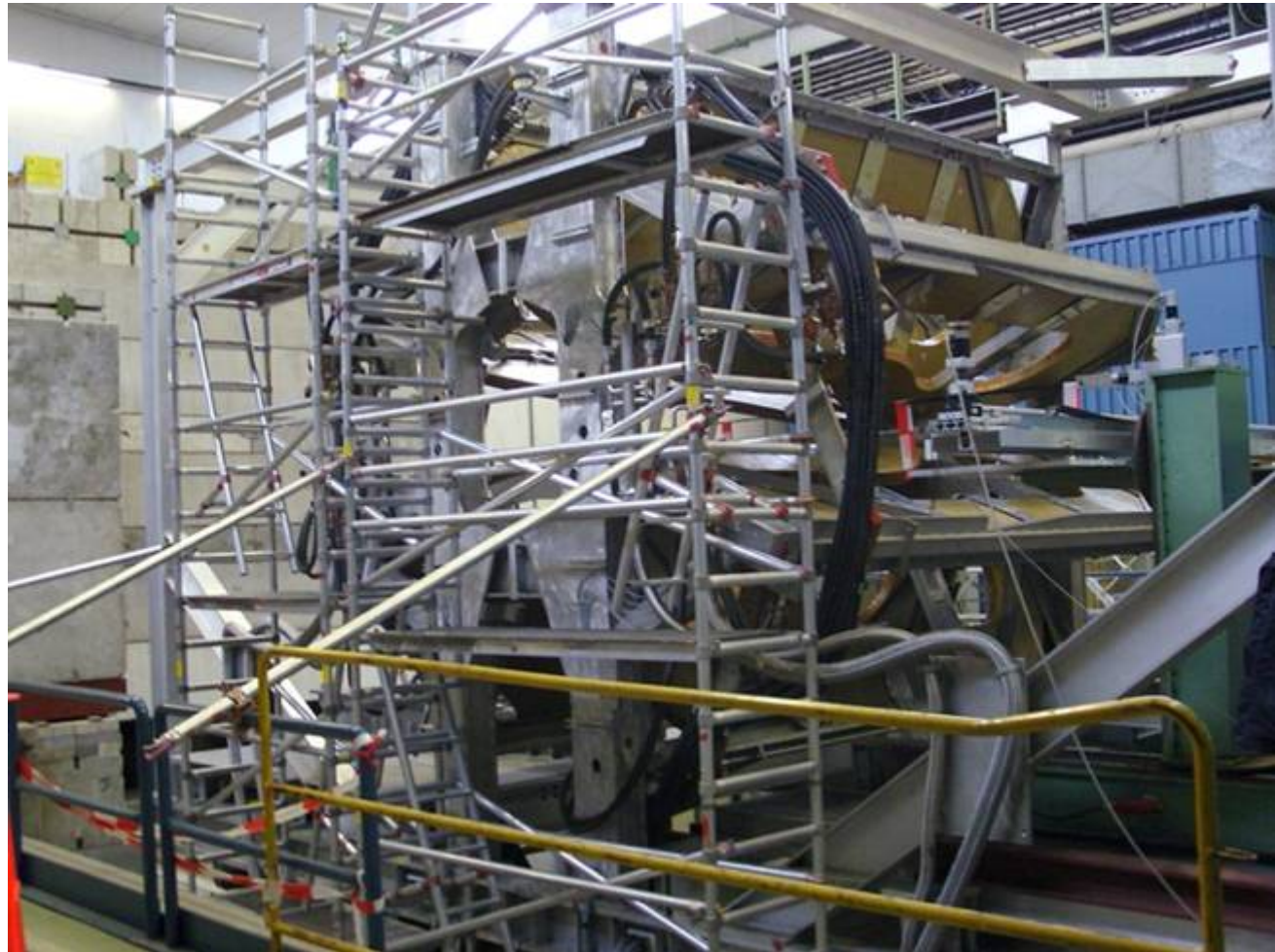
University of Kentucky, USA

Universität Mainz, Germany

University of New Hampshire, USA

Yerevan Physics Institute, Armenia

- > **Detector assembled in parking position**
 - Platform, rails, frames mounted
 - Toroidal coils installed and wired
 - Magnet tests and commissioning started
- > **Installation of vacuum system in DORIS January 2011**
- > **August 2011 move detector into beam line**



DESY Long-term Strategy in Particle Physics



- > **Accelerators** + support through strong theory group
- > **Detectors** + computing infrastructure
- > **Physics** + testbeam & other infrastructures

> **In addition: Explore potential use of DESY infrastructure for particle physics**

- **HERA: Z-factory, ep/eA, ...**
- **High intensity electron beams (FLASH, XFEL)**