

Welcome.

EUDET Annual Meeting 2010

Joachim Mnich

DESY
September 2010


> Outline

- past
- present
- future

How it all begun: EUDET Proposal

EUDET Detector R&D for the International Linear Collider

Proposal full title	Detector R&D towards the International Linear Collider
Proposal acronym	EUDET



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Participants Cost Model	Total Expected Budget (k€) (incl. AC participants internal costs)	Requested EC Contribution (k€)
FC	1662.682	717.082
FCF	8162.214	2436.414
AC	13431.006	5517.382
TOTAL	23255.903	8670.879

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- > **Proposal submitted March 2005**
- > **Approved in summer 2005**
- > **Start 1.1.2006**
 - Originally 4 years duration
 - Later extended to 5 years
- > **Budget**
 - 21.5 M€ total
 - 7.0 M€ EU contribution
- > **Manpower**
 - ≈ 57 FTE total
 - ≈ 17 FTE EU funded

Where it all begun: Kickoff-Meeting

- > DESY February 15 – 17, 2006
- > 113 registrants

EUDET Kick-off Meeting

Wednesday 15 February 2006

Registration - 5--Lecture Hall (13:00-14:00)

Session I - 5--Lecture Hall (14:00-15:30)

Welcome and introduction talks

- Conveners: Joachim Mnich

time	[id] title	presenter
14:00	[s0t1] Welcome and Introduction to DESY (00h20')	ROLF HEUER
14:20	[s0t3] Overview on EUDET (00h20')	JOACHIM MNICH
14:50	[s0t2] Experience in FP6 and outlook FP7 (00h20')	STEFANO FONTANA
15:10	[s0t4] The Scientific Advisory Board (00h20')	GIGI ROLANDI



Description of EUDET



EUDET

- **is NOT a detector R&D programme in its narrower sense**
but provides a framework for ILC detector R&D with larger prototypes
- **does NOT cover all future needs (financial & human resources)**
additional resources required, e.g. to exploit EUDET infrastructures
- **is NOT a closed club**
other institutes (European & non-European) are invited to
 - contribute to the development of the EUDET infrastructure
 - and to exploit it (→ Transnational Access)

link to developments in America and Asia

→ talks by Andy White and Tohru Takeshita



Conclusions



- **EUDET is latest example for the high recognition of ILC at the EU**
- **Provides additional funds for European institutes**
 - to help in the next phase of ILC detector R&D**even more important**
 - **EUDET can help to raise additional funds at national agencies**
- **Additional funds are needed**
 - to create and exploit the infrastructures
 - everyone is invited to participate
- **EUDET is an ambitious programme with a lot of exciting work ahead of us**
- **We must make EUDET a success!**



> **Today: final Annual Meeting**

But this is not the end of the story!

> **Final report(s) and publications are important**

Remember: Make EUDET a success!

> **Also in future EU projects are important (→ AIDA)**

Still the same arguments

- **Networking & community building**
- **High reputation at other (national) funding agencies**



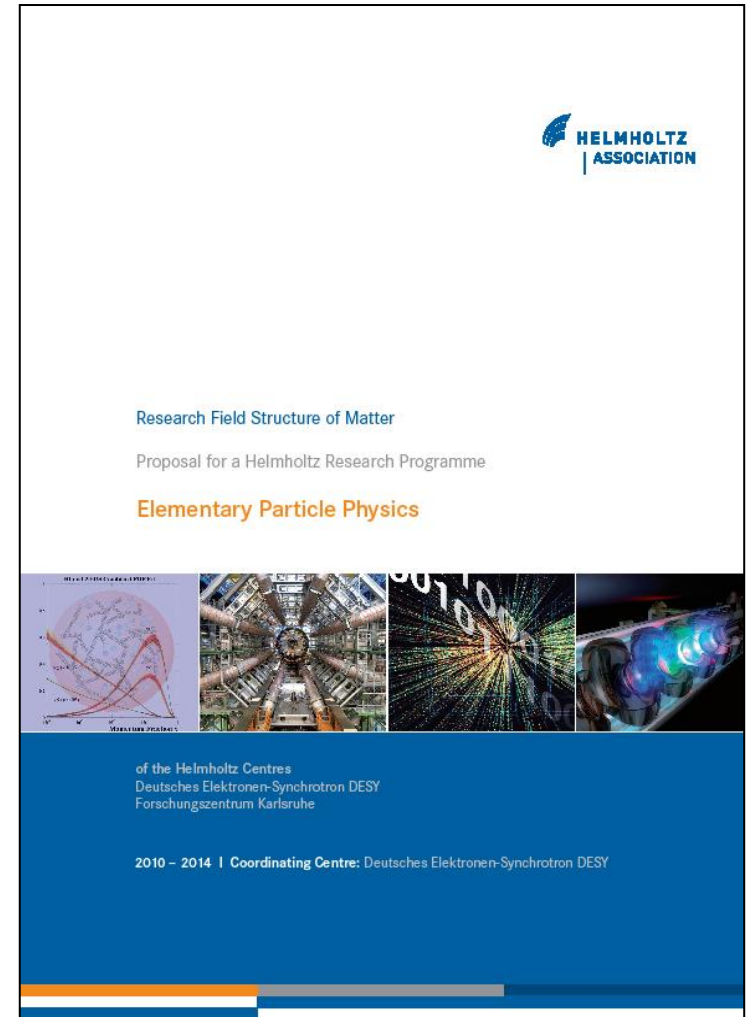
- > **Detector R&D:**
future European project is AIDA

→ Laurent Serin

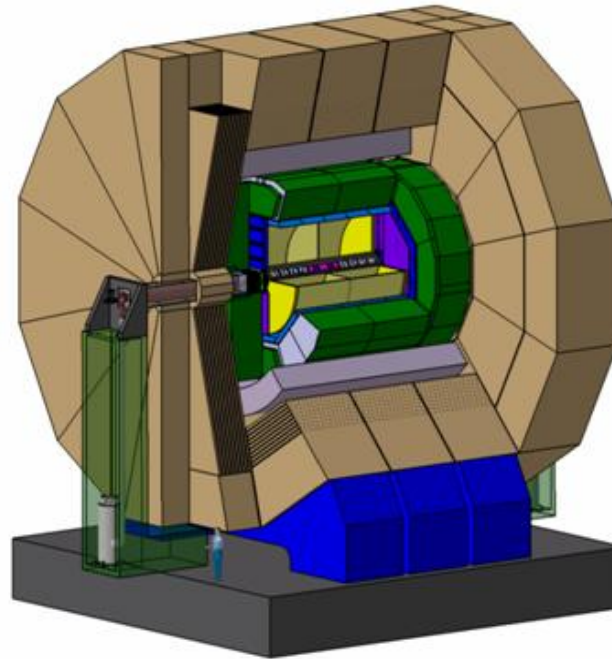
- > **DESY view**

- HERA
- LHC
- Linear Collider
- Theory
- Experimental Facilities
- Computing (TIER-2)

- > **DESY Programme Elementary Particle Physics 2010-14**



- > **DESY remains committed to the Linear Collider R&D**
 - Accelerator
 - Physics
 - Detector
- > **ILC TDR in 2012**
- > **Detector topics:**
 - Vertex Detector
 - TPC
 - HCAL
 - FCAL
 - ILD concept

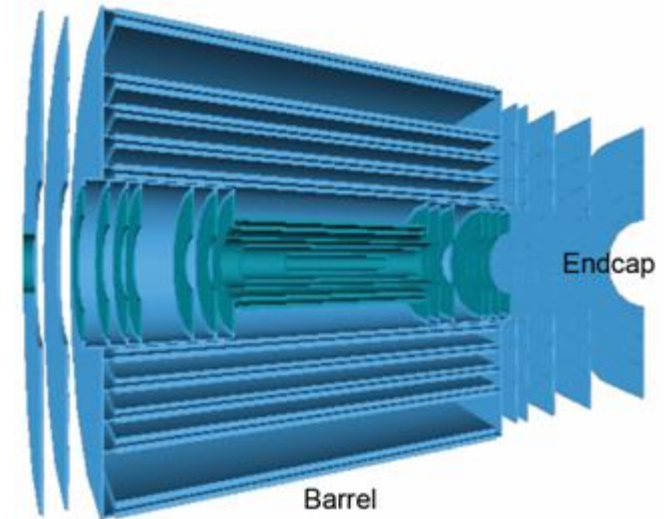


DESY and the LHC: ATLAS

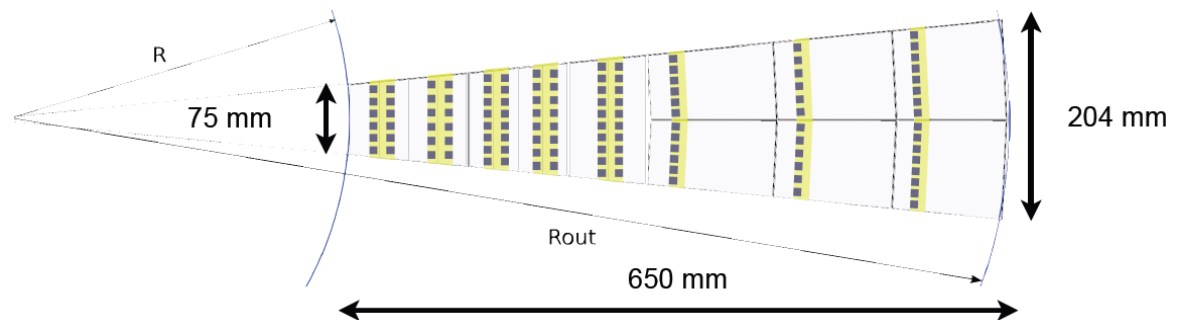
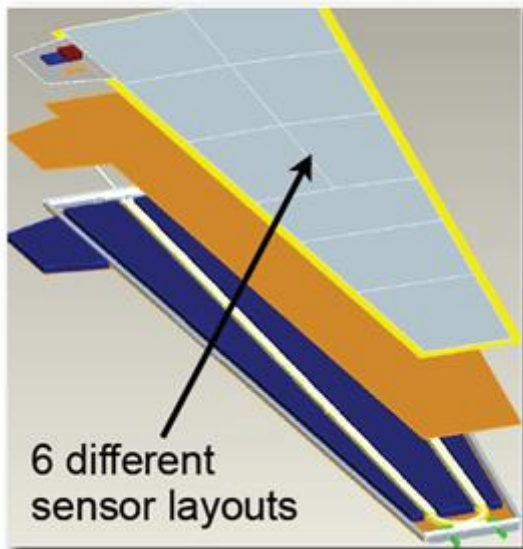
> ATLAS tracker (2020)

> PETAL2014

- Collaboration with HU Berlin, Freiburg, NIKHEF, Valencia, Prague
- Develop, construct & test one basic building block of the tracker endcap



Exploded View of Early Petal Design



> Upgrade CMS pixel detector

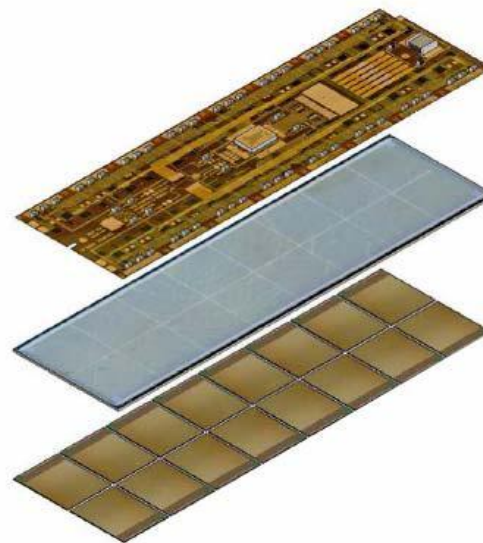
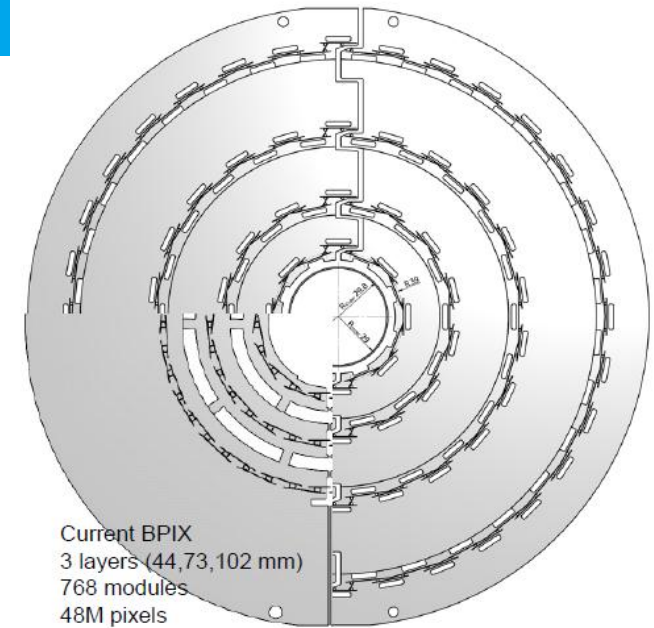
- 3 layer → 4 layer (barrel)
- Less material
- Smaller inner radius (b-tagging)
- Improved r/o (deadtime beyond $2 \cdot 10^{34}/\text{cm}^2/\text{s}$)
- Higher efficiency & redundancy

> Collaboration with

- Aachen, Karlsruhe, Hamburg
CERN, PSI, INFN, Vienna, ...

> Strengthens DESY's expertise in silicon pixel detectors

> Upgrade of the CMS tracker



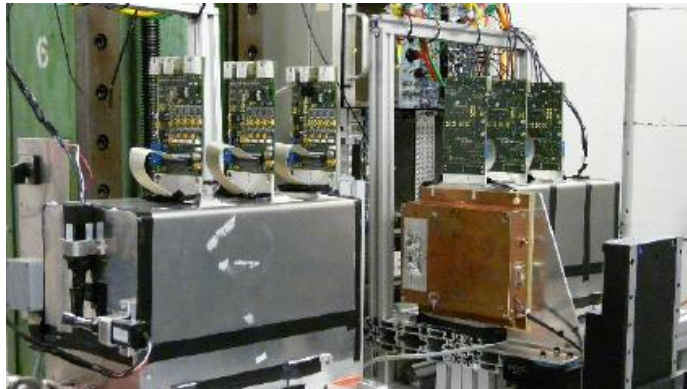
Impact of EUDET at DESY

> ILC detector R&D at DESY had many spin-offs for other projects

Examples:

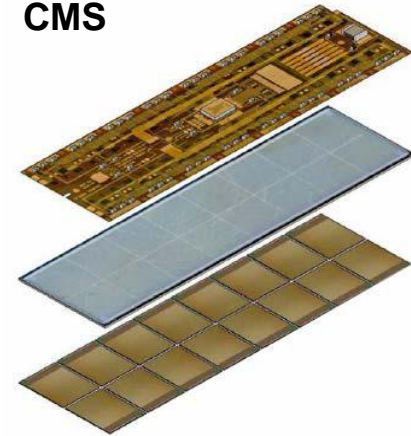
> Pixel detector

- EUDET telescope (coordination, mechanics,...)



- LHC upgrade
- DESY testbeam
- AIDA: new FP7 project

CMS

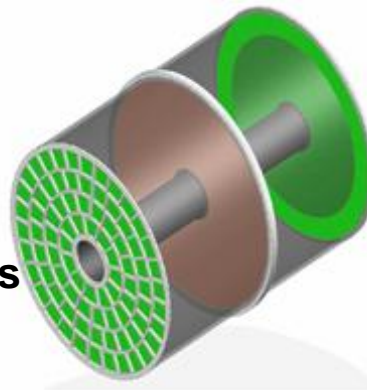


Mimosa26



> TPC

- GEM readout
- Design & mechanics



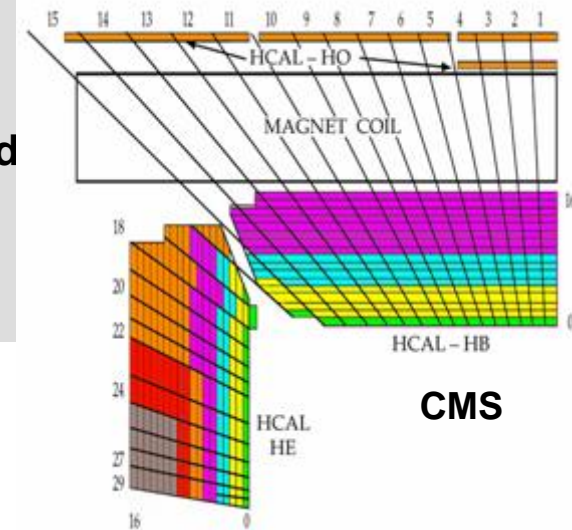
- Neutrino detectors (T2K)

Impact of EUDET at DESY

> Calorimetry

- PFLOW calorimetry
- SiPM HCAL

- LHC analyses, GEANT4 improvements
- CMS Muon+HCAL upgrade
- Medical applications (FP7 project)

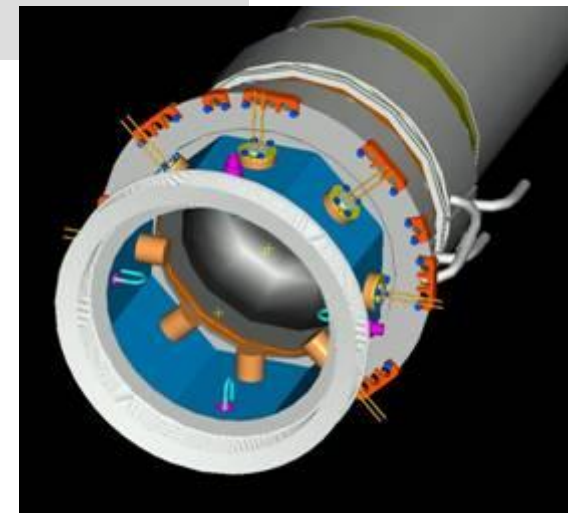
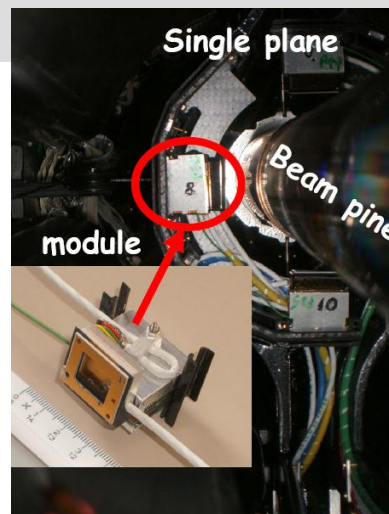


> Forward Calorimeter

- Design
- Tests of radiation hard sensors

- CMS beam condition monitor
- FLASH beam halo monitor

CMS
BCM



DESY Test Beam



- > Key element of EUDET project
- > Key element of the successor project AIDA

- Close coordination between CERN and DESY testbeam users

> Since April 2010:

- Test with PETRAIII top up mode → 27 sec break every 3 min works without problems

> 2010:

- 13 projects already scheduled
ILC (4 projects), ATLAS (4), generic pixel R&D (2), LHC-B, OLYMPUS, PANDA
- Note increasing demand from non-ILC users!

Testbeam users (EUDET)

	users	ILC	LHC	others	weeks
2005	13	7	3	3	46
2006	16	12	1	3	50
2007	18	15	2	1	37
2008*	6	3	3	0	12
2009	15	11	3	2	42

* 8 months shutdown in 2008



Conclusion

- > **Some personal comments to conclude**
- > **EUDET has been a very nice project**
 - All scientific goals reached
 - Most important: collaboration in Europe & beyond
- > **EUDET had huge impact at DESY**
 - Central project in detector R&D (e.g. testbeam)
 - Helped to prepare future projects (e.g. LHC)

- > **Bring it to a successful end**
- > **Best wishes for the future project**

