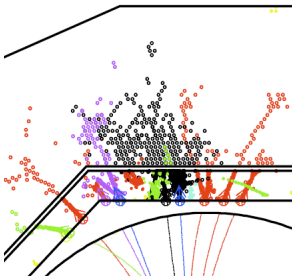
Introduction and overview

Felix Sefkow

CALICE Collaboration Meeting

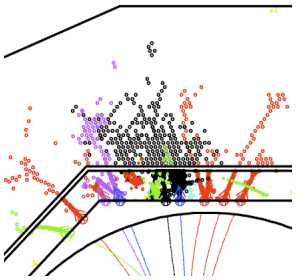
Arlington, TX, March 10-12, 2010



Thanks:

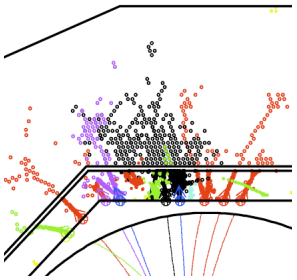
The University of Texas ARLINGTON

- To the University of Texas Arlington for their hospitality and the warm welcome!
- To Andy and Jae for the efficient and enthusiastic preparation
- To session convenors for assembling an interesting programme
  - And participants for chairing
- To all of you for coming and joining!



A few words on …

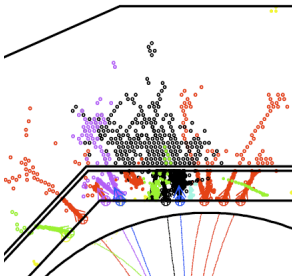
- PRC reviews
- Publications
- Test beam
- EUDET, AIDA
- Roadmap to DBDs 2012



In memoriam

Vladimir Ammosov

10. Feb. 1945 - 11. Jan. 2010



PRC review and plans

Report to the DESY PRC

The CALICE Collaboration*

November 1, 2009

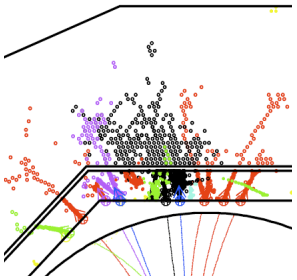
Derived in series of meetings 2009:
Technical Board review
Collaboration meeting
Test beam workshop
➔ Presented to PRC, to ILD, …

Project	2010/1	2010/2	2011/1	2011/2	2012/1	2012/2
Phys. Prot. Si-W ECAL/DCHAL/TCMT	xx	xx	xx	-	-	-
Phys. Prot. W ECAL / W HCAL / TCMT		x	x	xx	xx	-
Tech. Prot. DHCAL	x	x	xx	xx	xx	xx
Tech. Prot. AHCAL	x	x	x	x	xx	xx
Tech. Prot. Si-W ECAL	-	x	x	xx	xx	xx
Phys. Prot. DECAL	x	x	x	x	x	x
Tech. Prot. Sc-W ECAL	-	-	-	-	-	x

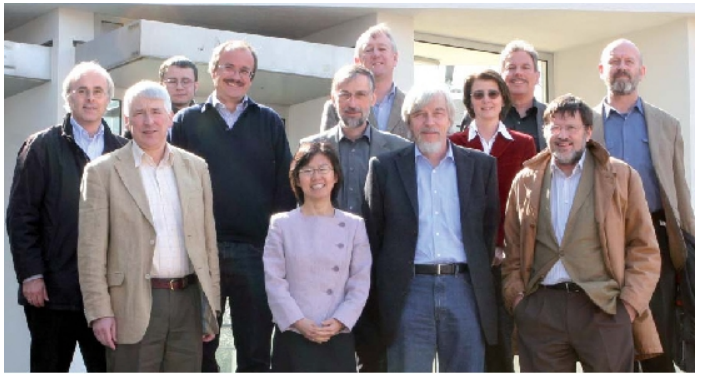
Table 2: *The table indicate the envisaged testbeam activities until the end of 2012. The symbol – means "No activity planned", The symbol* x *means "Test of small units can be expected", The symbol* xx *means "Large scale testbeam planned".*

46

- https://twiki.cern.ch/twiki/pub/CALICE/CaliceCollaboration/CALICE_PRC09.pdf
- And on the arXive



Outcome



- "The PRC applauds the collaboration…."
- Full endorsement of our plans
- Supportive words bySakue Yamada
  in the closed session on the cooperation between concepts in CALICE
- Short report on status of publications April 2010
- Next full review Fall 2010 (to be discussed)
- NB: ECFA discussing European review scheme
  - Will continue to look at R&D collaborations

Status of papers

- Since Lyon:
  - SiW ECAL energy resolution/linearity paper was published in NIM (after some difficulty with the referee) Cârloganu
  - AHCAL Commissioning paper submitted to JINST; referee comments received and responded to. Eigen
    - This should be a prerequisite for further AHCAL papers, which I hope will now follow quickly.
- In the pipeline
  - SiW ASIC exposure paper (in editorial board) Pöschl
  - SiW ECAL pion analysis (out for collaboration comments) DRW
- In addition, the planned series of papers on the DHCAL slide test has been completed. Several papers also exist on the MicroMegas work. See

  https://twiki.cern.ch/twiki/bin/view/CALICE/CalicePapers

  and please add anything that's missing.

CALICE Calorimeter for LC

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CALICE Analysis Notes

- Approved since Lyon
  - **CAN-011d** Addendum D (B.Lutz)
    - Longitudinal profiles in rotated AHCAL
  - **CAN-011e** Addendum E (A.Lucaci-Timoce)
    - **Transverse profiles in AHCAL**
  - **CAN-018** Calibration of the Scintillator Hadron Calorimeter of ILD (Sefkow)
  - **CAN-019** Studies of the Effect of the TCMT and Coil on Leakage and Energy Resolution (Francis)
  - **CAN-020** Pions in SiW ECAL (DRW)
- In editorial board (aiming for LCWS2010 or CALOR10)
  - **CAN-016** ScECAL FNAL results (Uozumi)
  - **CAN-017** ECAL irradiation studies (Poeschl)
  - **CAN-021** AHCAL energy resolution (Seidl)
  - **CAN-022** Track segments in AHCAL (Weuste)
  - **CAN-023** ECAL tracking using Hough Transform (Fehr)

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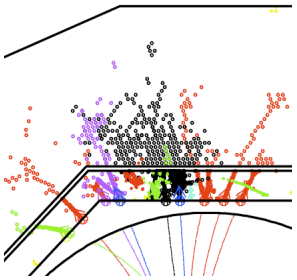
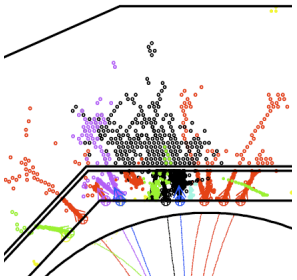


Test beam

- Workshop at Orsay ➔ roadmap document for lab managers
- Agenda 2010:
  - RPC DHCAL at FNAL (start-up September)
  - MAPS DECAL, µMs, RPC (S)DHCAL, W-HCAL at CERN PS and SPS
  - Electronics tests at DESY
- Considerably intensified activity 2011 onwards
- Goal: quasi-permanent installation for LC detector R&D
  - Needs coordinated strong push



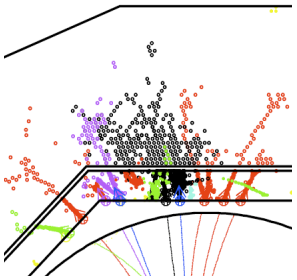
EUDET and AIDA

- EUDET: all milestones completed, deliverables delivered
  - Infrastructure "available", 93% spent
  - 5th year: exploitation, transnational

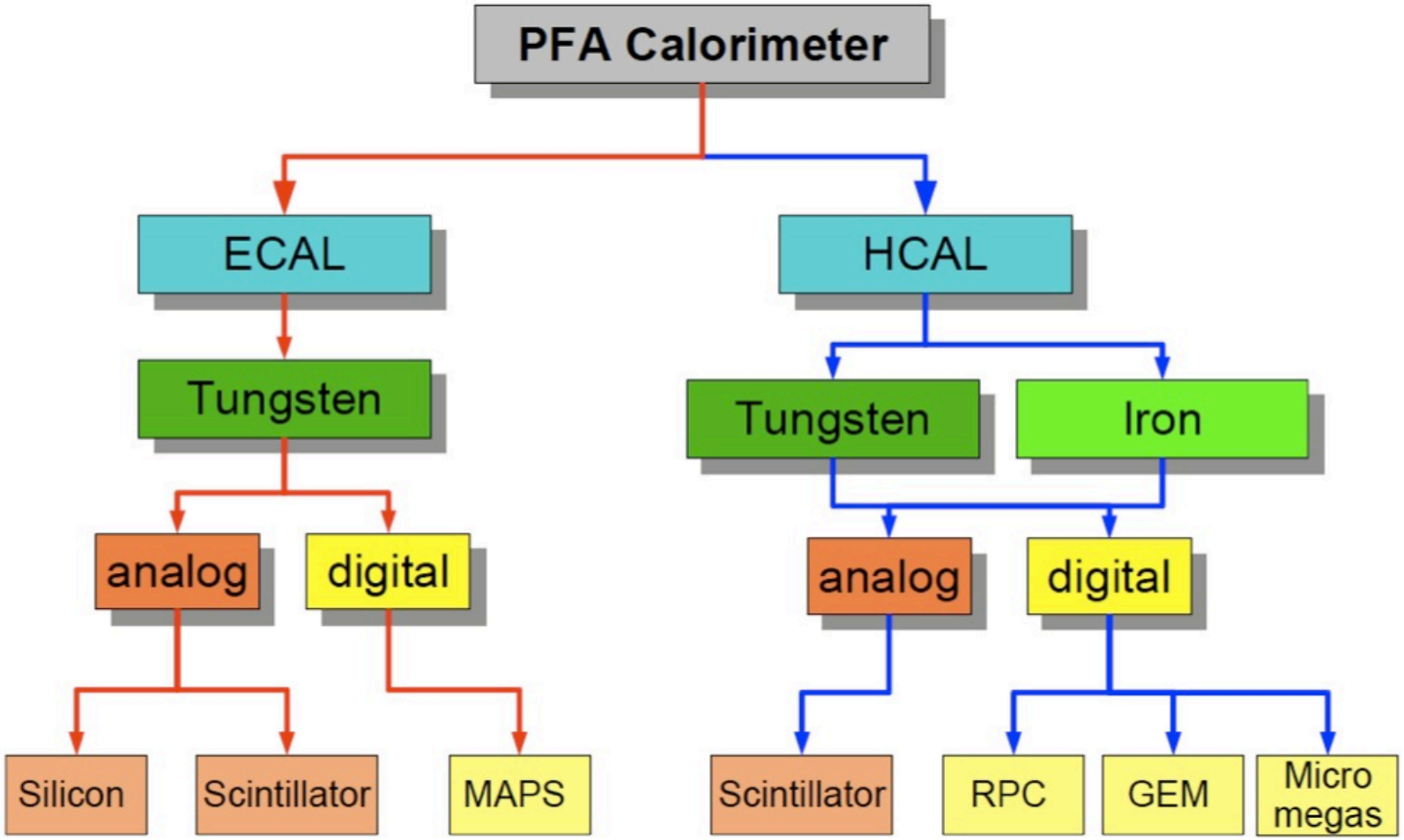
- AIDA: build on the success
- More partners, joint with LHC, CERN coord.
- 10M€ / 4y, passed 1st evaluation stage (14.5/15)

- WP 9.5: Highly granular calorimetry
  - Infrastructures for Si, Sci and gaseous technologies
  - ECAL, DHCAL, AHCAL, FCAL <50% of EUDET-calo
  - Everybody on board

Beneficiary short name
CERN
CERN
UHEI
WUP
DESY
MPI
ASCR
BERG
LAL
LAPP
IPNL
CIEMAT
UCL
LLR
LPSC
LAL
ASCR
AGH-UST
DESY
IFJPAN
TAU



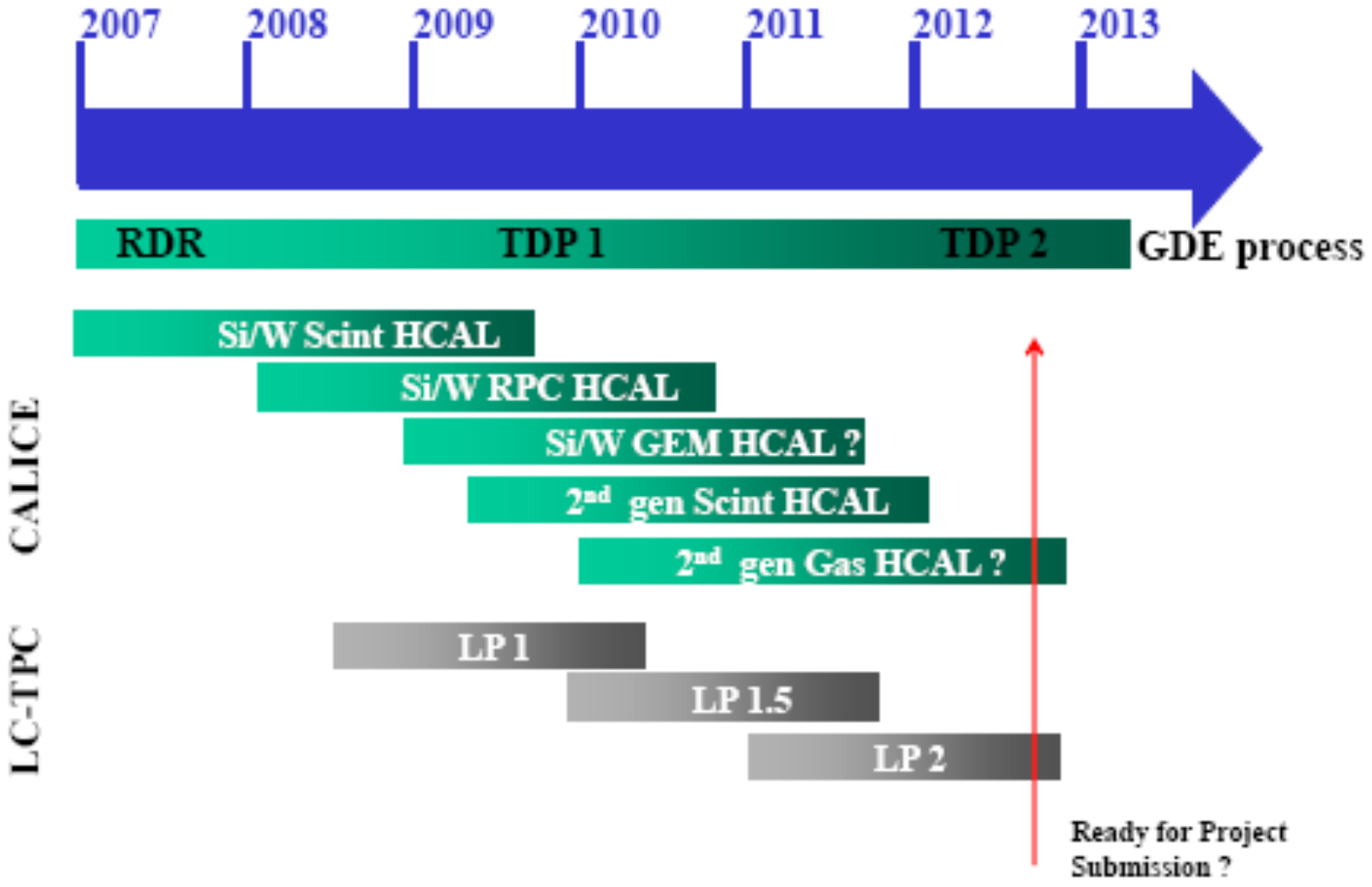
Technology tree

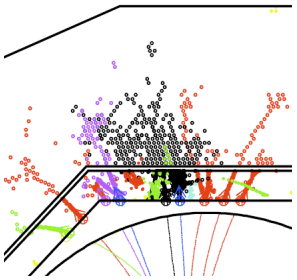


Engineering run : feb 2010

- Reticle : 22 x 18 mm2, 50 reticles per wafer
- 25 wafers produced (cost : 150k masks + 100k wafers)
- 1250 chips of each type

Schedule

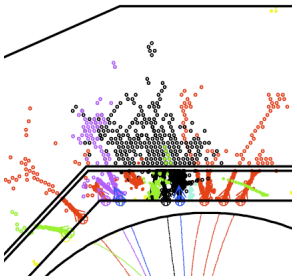

2007
2008
2009
2010
2011
2012
2013
RDR
TDP 1
TDP 2
GDE process
CALICE
Si/W Scint HCAL
Si/W RPC HCAL
Si/W GEM HCAL ?
2nd gen Scint HCAL
2nd gen Gas HCAL ?
LC-TPC
LP 1
LP 1.5
LP 2
Ready for Project Submission ?



The Matrix

	ILD	SiD
FCAL	FCAL collaboration	
Vertex	Many Pixel R&D groups	
Tracker	LCTPC	SiD Tracker
	SiLC	
ECAL	CALICE	SiD ECAL
HCAL	CALICE	Dual Readout Crystal / Dual Readout Fiber
Coil	ILD Group	SiD Group
Muons	ILD Group	SiD Group

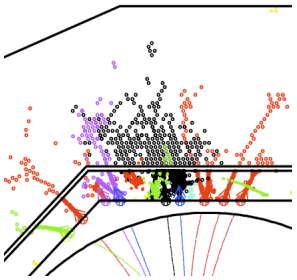
and their high energy versions



Concepts and R&D

- ILD heavily relies on R&D collaborations for the development of sub detector technologies
  - Contact persons, not conveners
- SiD as a concept group takes a stronger role in R&D
  - ECAL in SiD, HCAL in CALICE
- CLIC has no own concept but builds on *both* ILD and SiD
  - Include all options, plus new ones (W HCAL)

→ Discussion session Thursday



Example ILD

Technology driven timeline

	10				11				12			
Fix options											x	
R&D												
Simulation												
testbeams												

R&D collaborations present their
proposed baseline, discussion and decision
In ILD starts

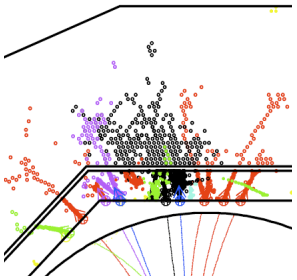
Goal: try to use as much as possible results from ongoing R&D before deciding on a technology baseline.

R&D does not stop with the DBD

Include Alternatives

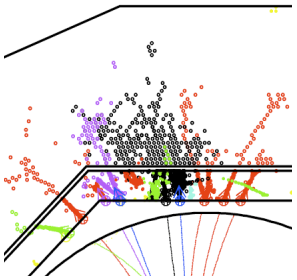
Open for discussion

CALICE
Calorimeter for ILC



Plan and reality

- Reality will look different, we always had to adjust, and we will need flexibility also in the future. Projects are not independent.
- *In general*, technological prototypes will not be completed, tested and analyzed by 2012.
- The case for baseline options will rest on combining information from physics and technology prototype, and maybe even from different options or sub-detectors (e.g. power pulsing).
- The program is geared towards establishing two ECAL and two HCAL baseline options by 2012.
- Yet, there will be open issues and on-going projects beyond 2012.



Goals for 2012

- Accomplish our R&D plans
  - Maintain the community and the momentum for beyond 2012
- Reach a consensual understanding of strengths and weaknesses of different candidate technologies, and document it
  - Stability, calibration, performance, dead regions, **and open issues**
- Use internal and external **review processes**

- Provide input to DBDs in an oganized and consensual way:
- Establish feasibility at technological level
- Provide realistic input to simulations
  - Validated by test beam results
- Provide realistic input to detector integration
  - Validated by design and construction

Upcoming conferences

- LCWS2010 (Beijing, March 26-30 2010)
  - 17 talks proposed; all accepted
- CALOR10 (IHEP Beijing, 10-14 May 2010)
  - *Abstract deadline 10 April 2010* **Need to move soon.** Important meeting for us; need a strong showing. Invited talk.
- IPRD10 12th Topical Seminar on Innovative Particle and Radiation Detectors (Siena, 7-10 June 2010)
  - *Abstract deadline 15 March 2010* **Nobody interested!? Students?**
- ICHEP2010 (Palais des Congrès, Paris, France, 21-28 July 2010)
  - *Abstract deadline 15 May 2010* Expect ~2 talks?
- ECFA Workshop International Workshop on Linear Colliders 2010 (CERN/Genève, 18-22 October 2010)
- IEEE Nuclear Science Symposium (Knoxville, 30 Oct-6 Nov 2010)
  - *Abstract deadline 10 May 2010*
- Please contact David Ward if interested.

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Enjoy the meeting!