

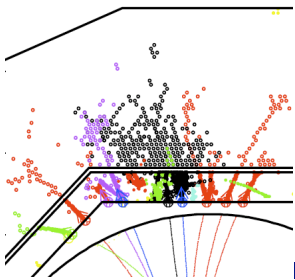
Introduction and Overview



Felix Sefkow



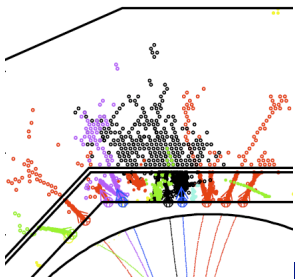
CALICE collaboration meeting
Emmanuel College, Cambridge, September 16-19, 2012



Thank you!



- We are honoured to be hosted by the Cambridge group and Emmanuel College
- And many thanks to David and Mark for their invitation and the preparatory work in so busy times
- The wine tasting was supreme!
- Thank you to session convenors for arranging an agenda with good coverage in a condensed schedule
- Thank You all for coming!



Outline

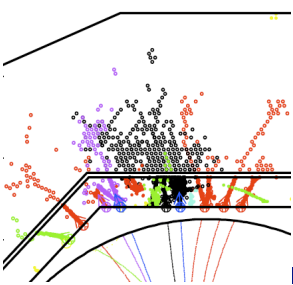
- Test beam
- Publications
- Reviews and Reports
- Future



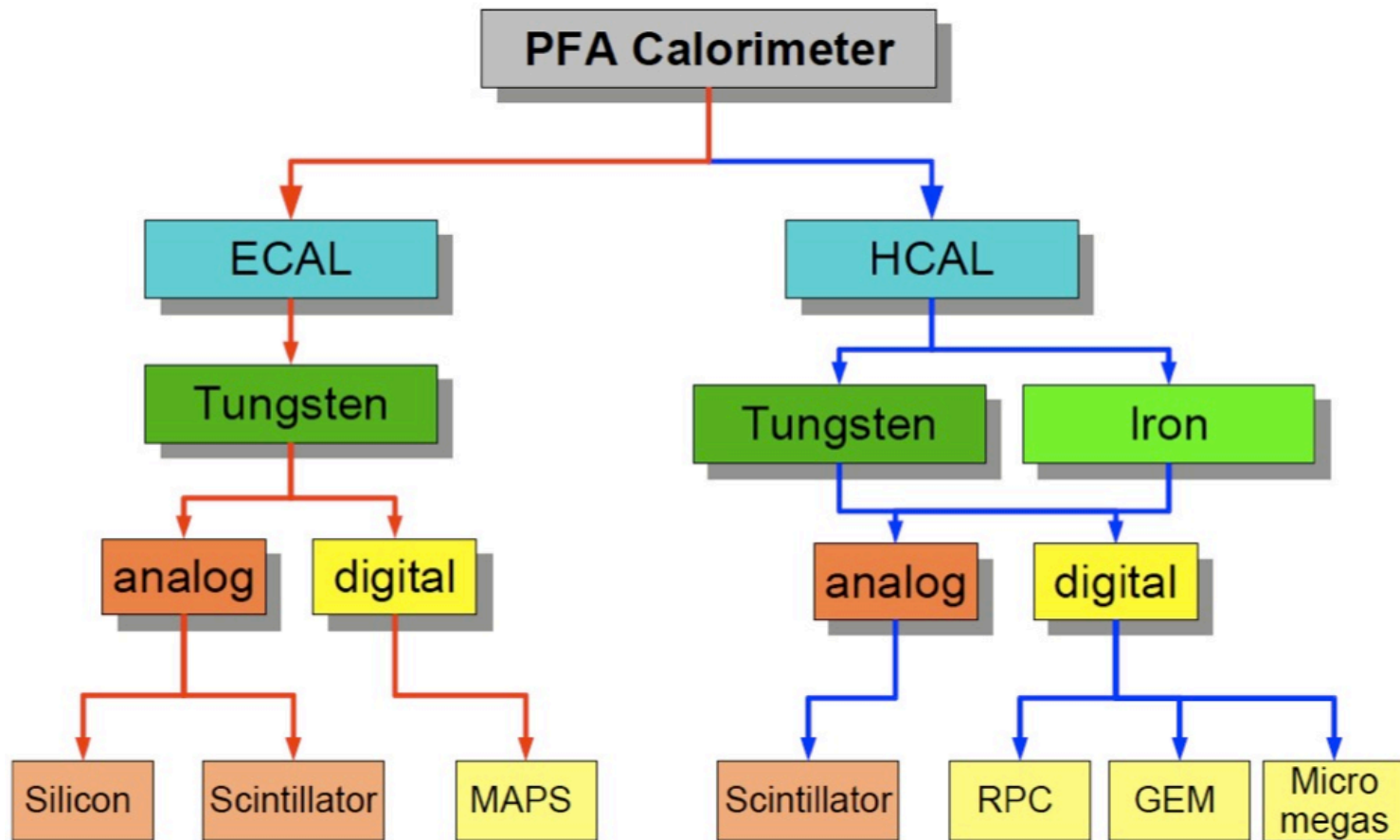
Since Shinshu

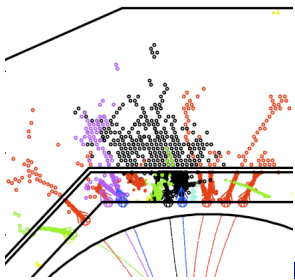


- W DHCAL: 2 of 3 run periods at SPS
- SDHCAL 2 of 3 run periods SPS
- μ MEGAS 1 of 2 periods SPS
- SiECAL-2 first stack at DESY
- AHCAL-2 first layer at DESY
- DAQ-2 success in test beam
- 2 CALICE papers, 1 note
- ECFA review
- ILD and SiD DBD drafts almost ready



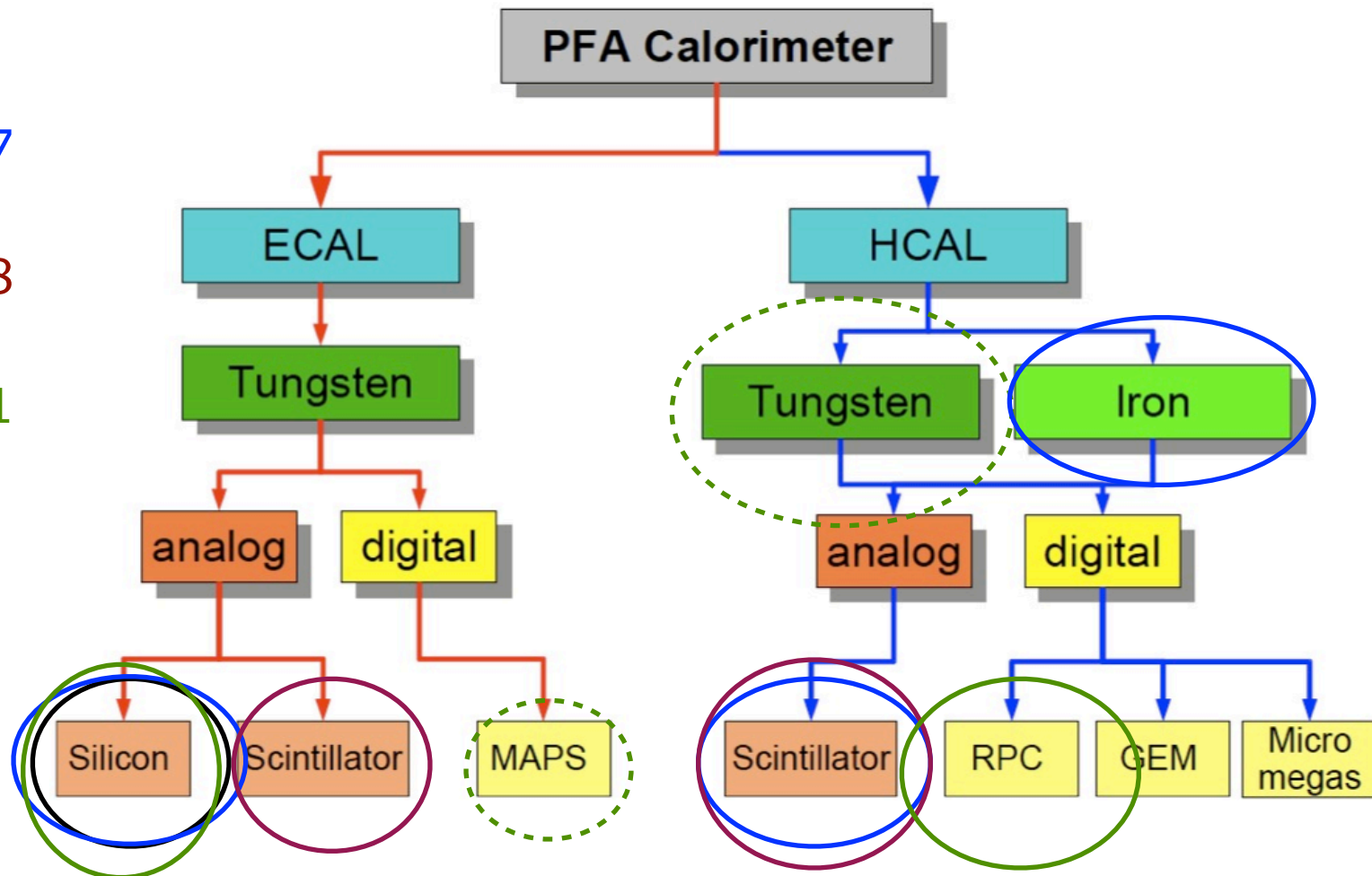
Technology tests

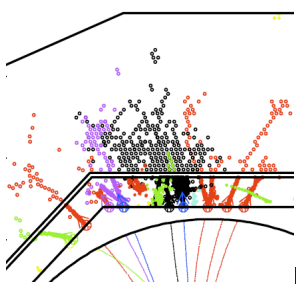




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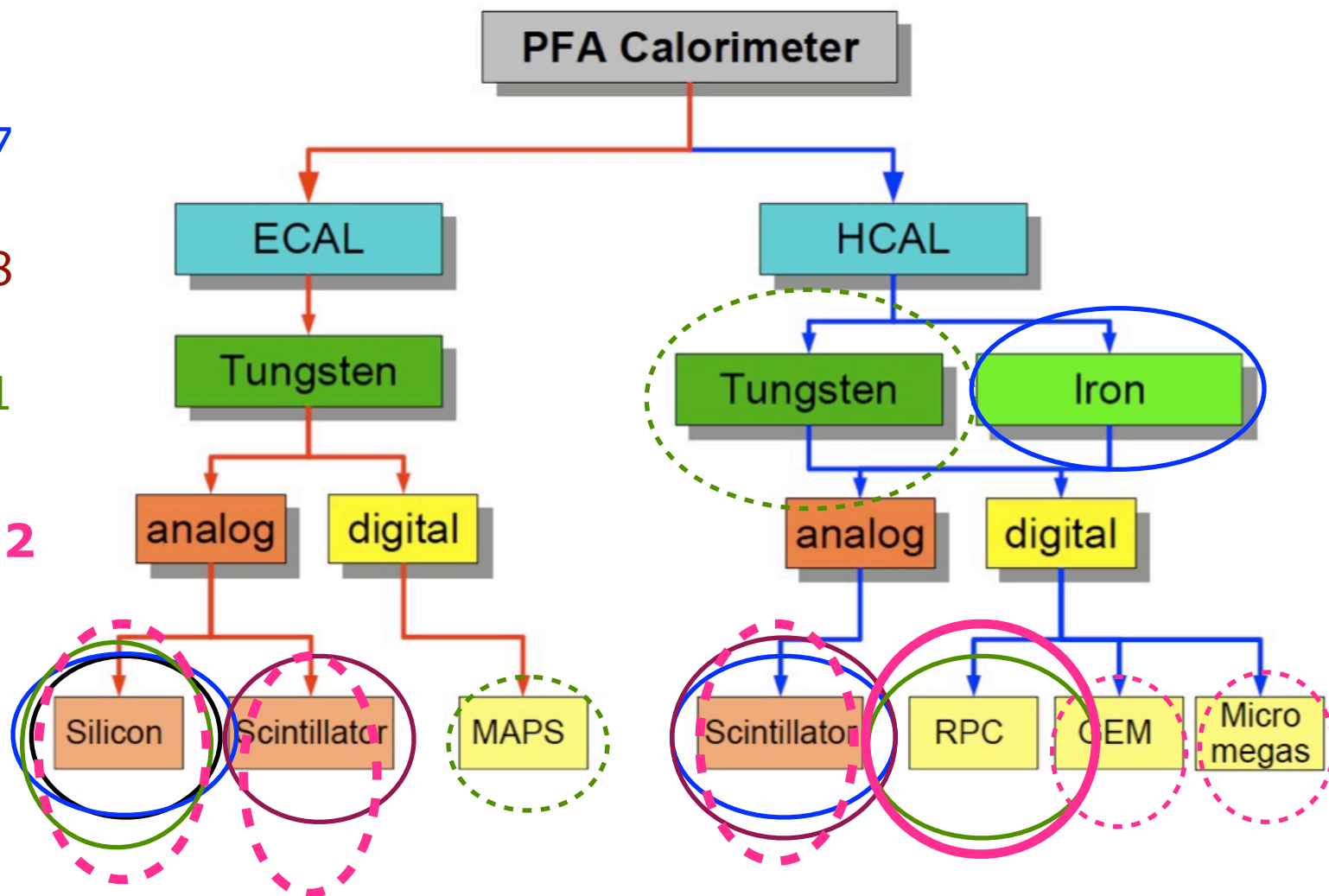
- 2005
- 2006-07
- 2007-08
- 2010-11

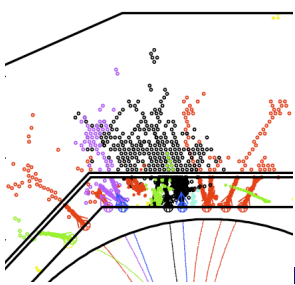




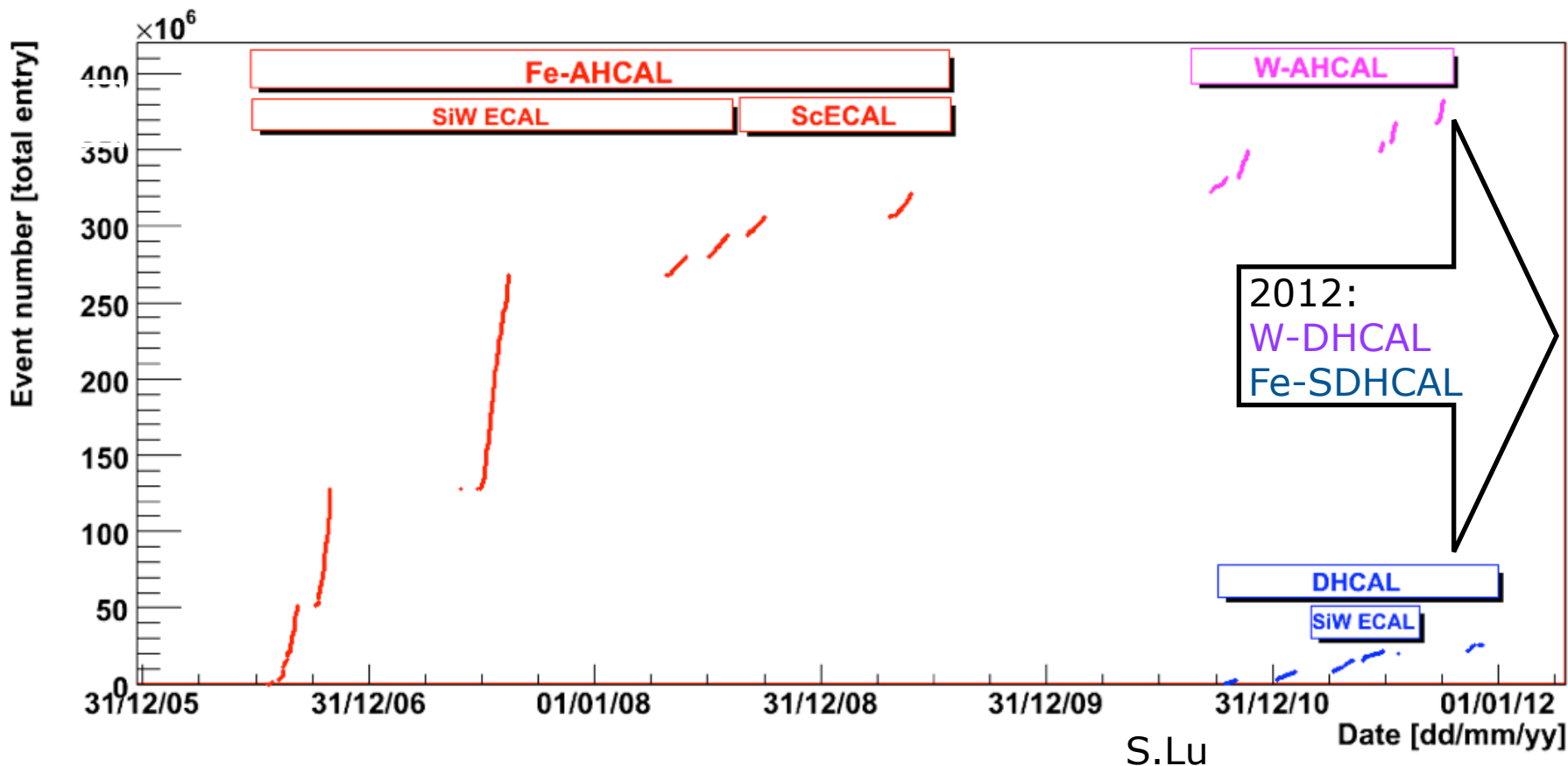
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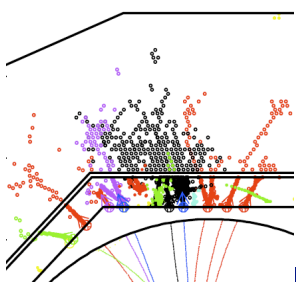


Summary of data taken



- Muon, LED and noise runs not included
- event size $\sim 50\text{kB}$ \rightarrow 20 TB of physics data on the GRID

Test beams



- 2012 milestone year for CALICE test beams
 - requests at CERN PS and SPS fulfilled, 2 weeks extra in Aug/Sep - a big **Thank You** to CERN
- With Fe SDHCAL and W DHCAL the physics prototype phase will be completed
- First tests with technological demonstrators
 - ECAL-2 stack with DAQ-2, AHCAL multi-HBU
- Important 2012 runs still to come
 - W DHCAL hi rate, μ Ms & RPC comb, AHCAL-2
- CERN long shutdown 2013, restart 2014 (before LHC), FNAL shutdown June 2012 - mid 2013
- DESY running in 2013, expect more intense demand
 - ECAL-2 and AHCAL-2 already in the books



Status of papers

- ❖ Since last Collaboration meeting:
 - ❖ **Construction and performance of a silicon photomultiplier/ extruded scintillator tail-catcher and muon-tracker**
[2012 JINST 7 P04015](#)
 - ❖ **Hadronic energy resolution of a highly granular scintillator-steel calorimeter using software compensation techniques ;**
Accepted by JINST; e-Print: arXiv:1207.4210
- ❖ Active EBs for papers:
 - ❖ Track Segments in AHCAL (Weuste, Simon)
 - ❖ First draft with reviewers
 - ❖ AHCAL shower shapes (Garutti, Feege, Marchesini)
 - ❖ Second draft with reviewers
 - ❖ Construction and beam tests of a tungsten calorimeter read out using scintillator strips (Coterra, Uozumi, Takeshita ...)
 - ❖ No draft yet

Analysis notes

- ❖ CAN036 WHcal results
 - ❖ Approved
- ❖ CAN037 SdHCAL Analysis Results – for LCWS/IEEE
 - ❖ Board set up; no draft yet
- ❖ CAN038 T3B timing results – update for LCWS/IEEE
 - ❖ Board just being set up

Conversion of CANs to papers?

- ❖ The following are still pending:
 - ❖ CAN012 (SCEcal small DESY test) – working on publication (S.Uozumi).
 - ❖ CAN017 (Si ECAL position/angle resolution) – probably needs more work, but author no longer in CALICE.
 - ❖ CAN023 (Hough transform) worth publishing (Fehr).
 - ❖ CAN025 (topologies in SiECAL) working on paper (Frisson).
 - ❖ CAN030-032 (DHCAL) analysis still ongoing (Repond et al)
 - ❖ CAN033 (T3B) likewise (Simon et al).
 - ❖ CAN036 (WAHCAL) publish including more data? (CERN group)

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all others are superseded or published

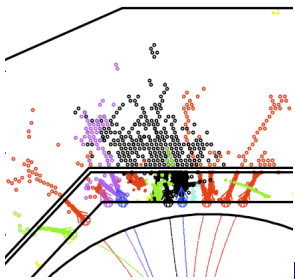
Conferences

❖ Recent conferences

- ❖ ICHEP2012 36th International Conference on High Energy Physics (Melbourne)
 - ❖ 1 talk (T Yoshioka)
- ❖ Pisa2012 12th Pisa Meeting on Advanced Detectors (Elba)
 - ❖ 1 poster (A.Lucaci)
- ❖ CALOR 2012 15th International Conference on Calorimetry in High Energy Physics (Santa Fe)
 - ❖ 7 talks (in the end)
- ❖ KILC12 (Daegu)
 - ❖ 10 talks

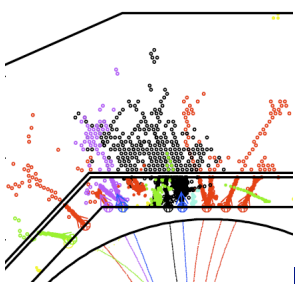
❖ Forthcoming conferences. Big ones are IEEE and LCWS

- ❖ TWEPP 2012 Topical Workshop on Electronics for Particle Physics (Oxford, 17-21 September 2012)
- ❖ 2012 IEEE Nuclear Science Symposium (Disney Hotel, Anaheim, California, 29 October - 3 November 2012)
 - ❖ LC Event: talks by Brient, Repond, Garutti, de La Taille
- ❖ LCWS12 International Workshop on Future Linear Colliders (University of Texas at Arlington; Oct. 22 - Oct. 26, 2012) - **send your abstracts to David, please!**
- ❖ VCI2013 13th Vienna Conference on Instrumentation (Vienna, 11-15 February 2013) *deadline for abstracts 19 October 2012*



LC Calendar 2012-13

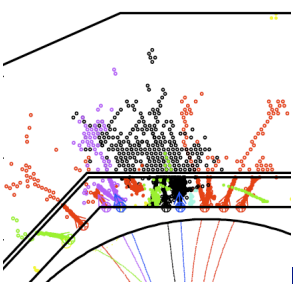
- LCWS12, Arlington, 22.-26.10,
- IEEE LC event, Anaheim, 29.-30.10.
- AIDA annual, Frascati, 8.-12.4.
- CHEF2013, Paris, 22.-25.4.
- ECFA-LC13, DESY, 27.-31.5.
- LP13, San Francisco, 24.-29.6.



Timeline to DBD

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 - start discussions on costing (ILD SiD coherence requested)
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- **October: IDAG review of DBDs at LCWS12 in Arlington**
- (PAC review end Nov)
- **December: final DBDs**
- end Jan to ILCSC and new LC director

- DBD will have common section on future R&D
 - input sent in June, section will be circulated

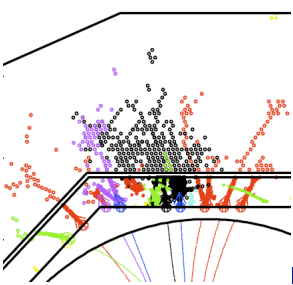


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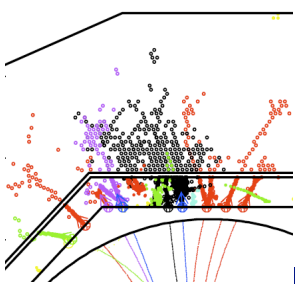
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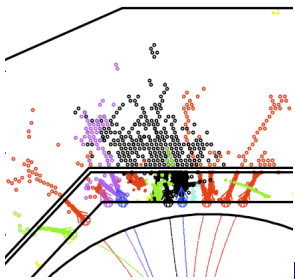
The new ECFA R&D reviews

- Provides a review scheme for R&D projects not associated with a host lab (yet)
 - LC related R&D largest group of customers
- Members: R. Brenner, M. Diemoz, D. Eckstein (scientific secretary), Y. Karyotakis (chair), E. Koffeman, G. Mikenberg, H.G. Moser, T. Sumiyoshi, C. Padilla, A. White
- First “kick-off” meeting May 2-3 at DESY
 - CALICE had been invited, together with other LC R&D efforts, to present status, no formal review
 - talk FS, closed session RP, FS
 - lively scientific discussion, friendly atmosphere
- First formal review Nov 5-6 at DESY
 - panel requested several talks (and faces)
 - report due 4 months before - recycle the DBD
 - think about what kind of feedback we need



Future plans

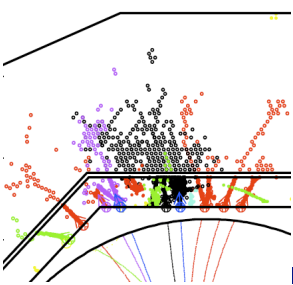
- We must fully exploit the existing prototypes
 - more data taking after LS1
- We must fully exploit the existing data
 - physics analysis is involved, but rewarding
- We must proceed from single or few layer demonstrators to full-scale tests of the integration concepts
- New physics possibilities: 4x finer ECAL, timing in AHCAL,...
- There is lots to do on system level - powering, cooling, data concentration - before we can proceed to pre-production prototypes (module 0)



AIDA and follow-up

- AIDA WP 9 (V.Boudry, M.Vos) task 9.5 Calorimetry (FS, RP)
 - subtasks R.Poeschl, K.Krüger, I.Laktineh, W.Lohmann, N.Seguin-Moreau, E.van der Kraaij
- ends end 2014
- Next call FP8: proposal due end 2013 for start in 2015
 - remain out of phase with accelerators
- Infrastructure for R&D
 - not: for production
 - not easy for the phase we are in
- Start thinking and talking about it
- Things that may work:
 - electronics next generation, industry relationship, quality control





European strategy

- Some impressions from Krakow
 - lot of support for LC, from usual supporters and luckily also from others, and not much raised against
 - if Japan moves forward, Europe should encourage and support it
 - too early for decision on next big facility at CERN
 - keep these two issues separate
 - the benefit of an ILC in Japan for Europe not yet fully realized by many
- Things start moving, but it may take some time until we know how fast



CALICE future

- Since we have achieved most of our goals, time to set a new course
- Near future is a transition period again
 - discussions for efficient representation of R&D groups in new LC structure
- Many boundary conditions unknown:
 - LC energy range, exact schedule, N_{exp} ,...
- One certain constant: tight funding
- We need to be prepared and remain flexible



Conclusion

- A milestone year for the LC
- CALICE has demonstrated that a particle flow calorimeter can be built
- We are ready to enter enter a new phase
- Lots of things to discuss
- Enjoy the meeting

