

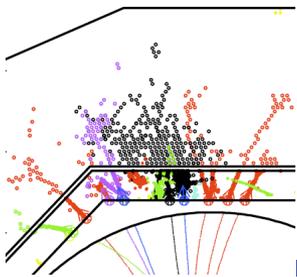
# Introduction and Overview



Felix Sefkow



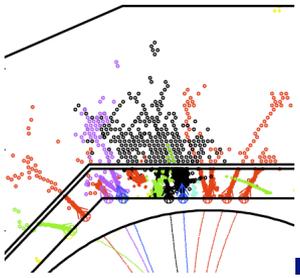
CALICE collaboration meeting  
Heidelberg, September 14-16, 2011



# Thank you!



- We cordially thank the Heidelberg group and the Kirchhoff Institute for preparing and hosting a CALICE meeting
- Compliments to Hans-Christian, Patrick, Tobias, and especially to Frau Kleveta for perfect arrangements
- An applause for the warm welcome evening in the old town
- Thank you to session convenors for arranging a rich agenda so shortly after previous meetings and the holiday season
- Thank You for coming!

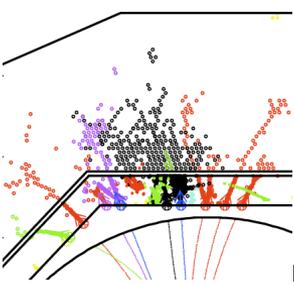


# Outline

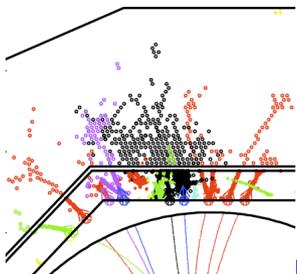
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- What happened since CERN meeting
- Test beams
- Towards the DBD
- Publications

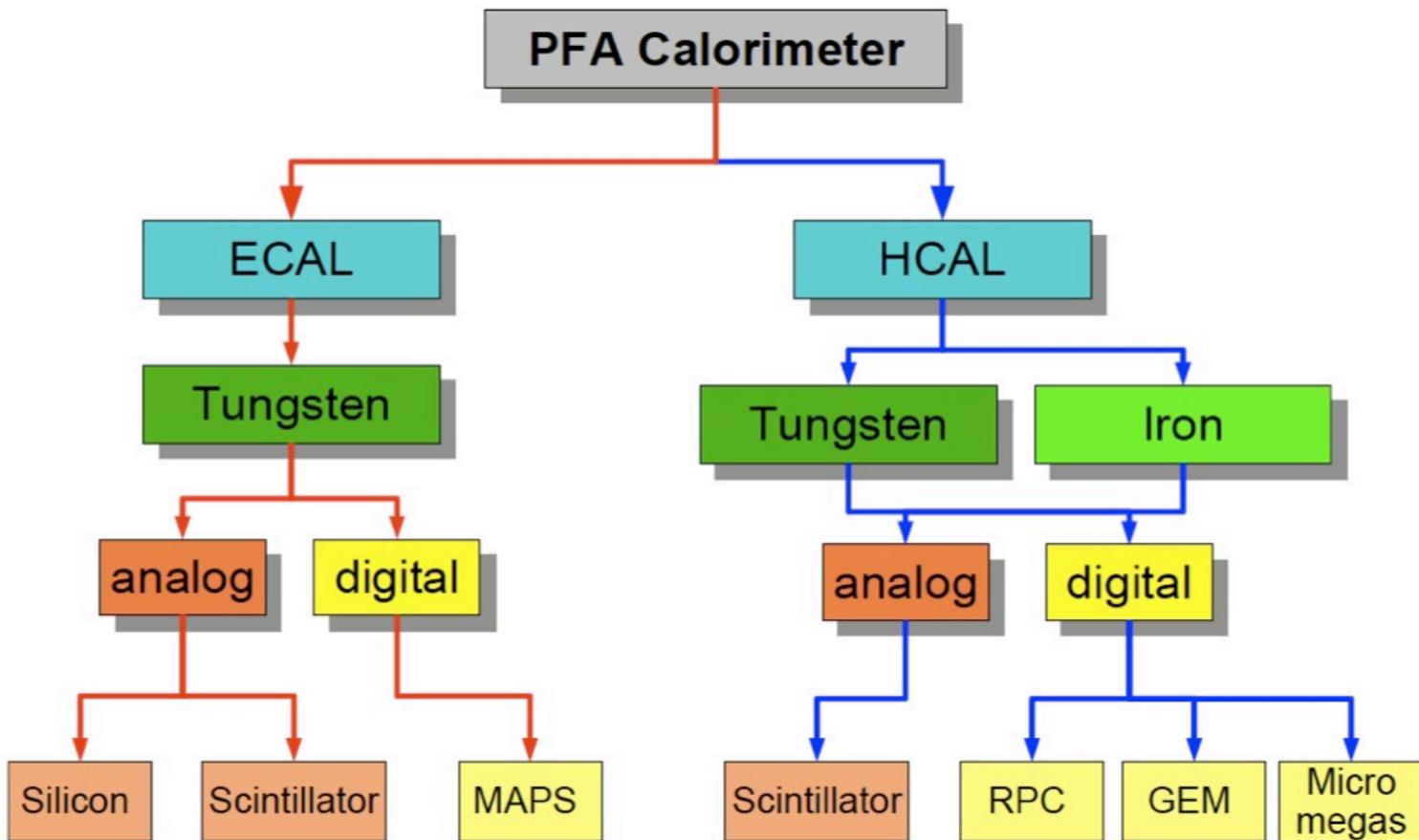
# Since CERN

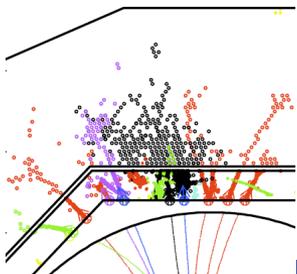


- W HCAL test-beam at SPS, with TCMT
- DHCAL test beam at FNAL
- SDHCAL commissioning and first full shower data
- ILD meeting at Orsay
- TIPP conference
- CLIC CDR release
- ILC Interim report
- JSPS kickoff meeting



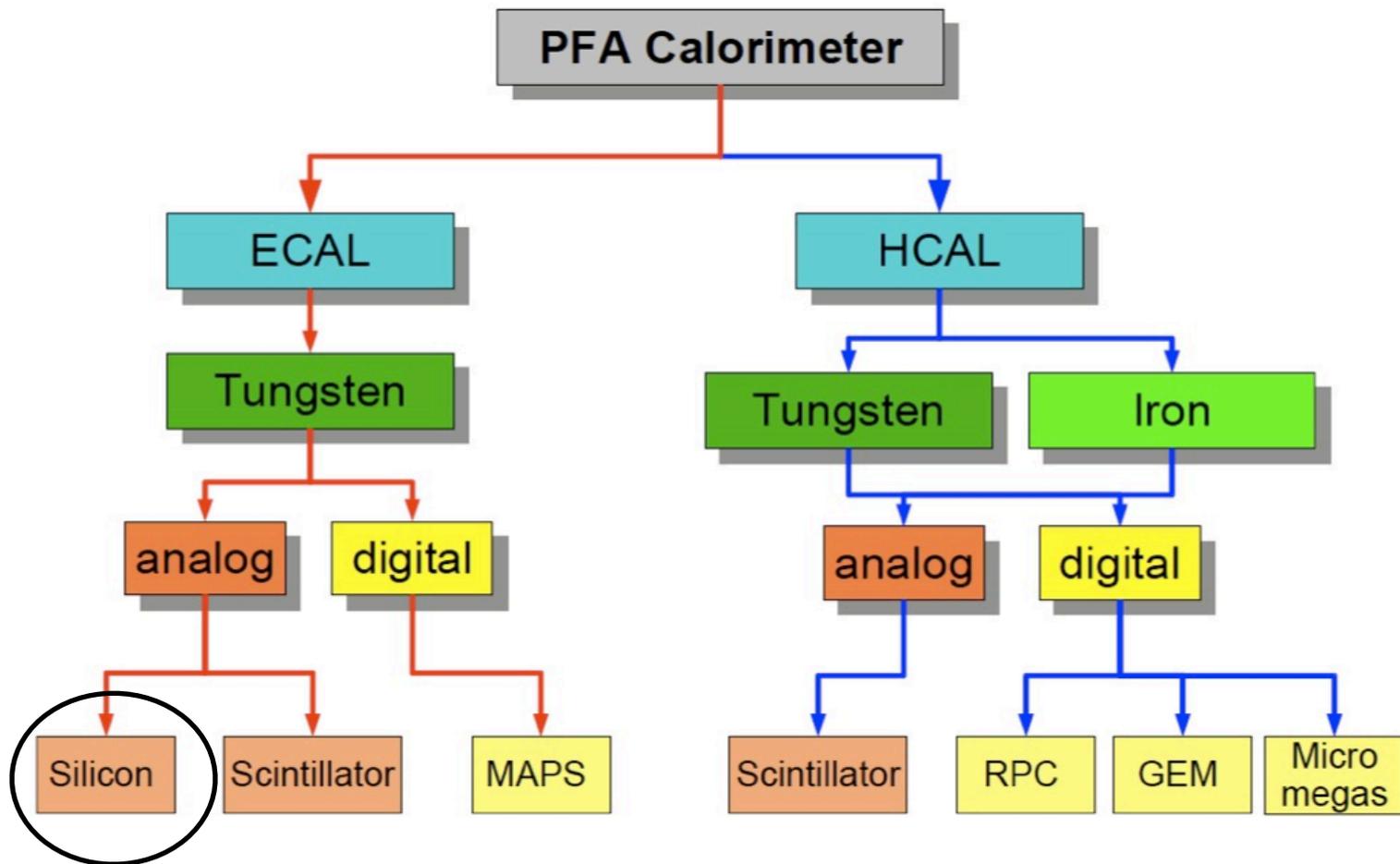
# Test beam status

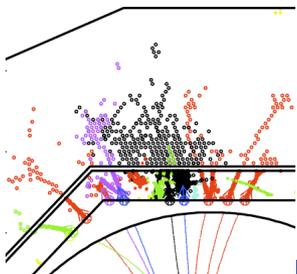




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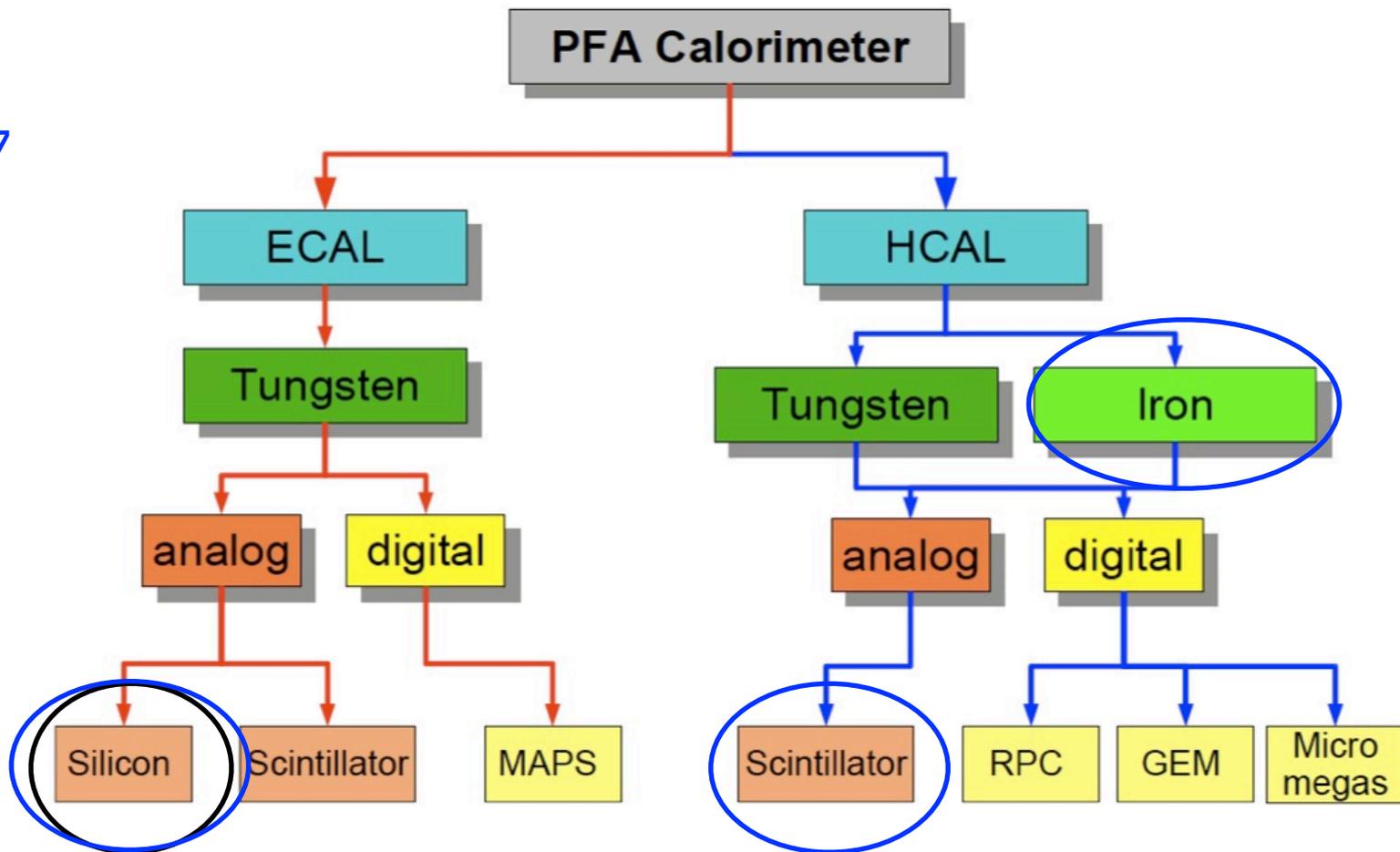
- 2005

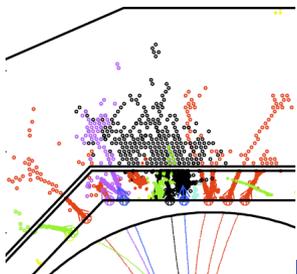




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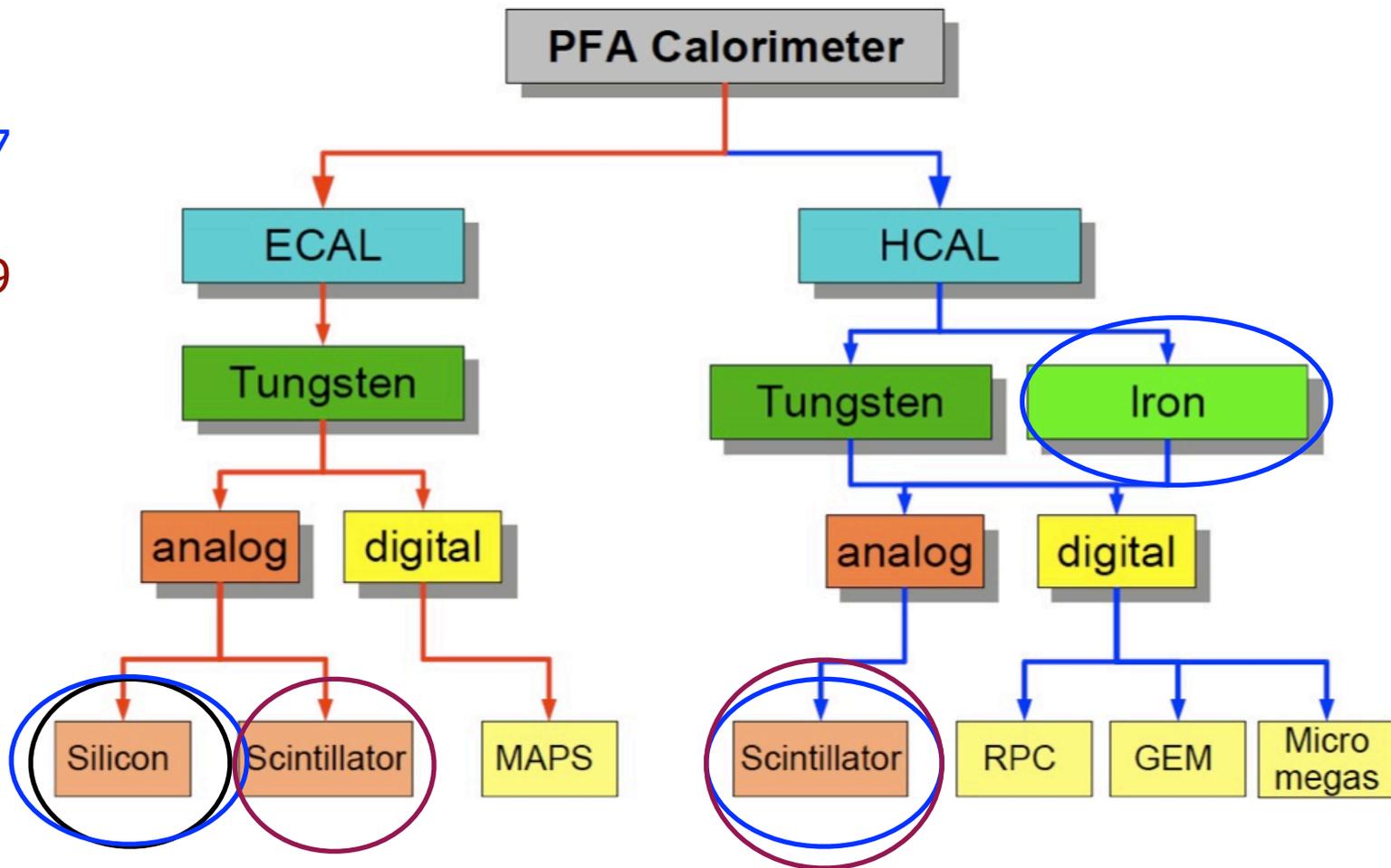
- 2005
- 2006-07

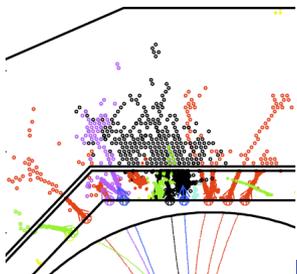




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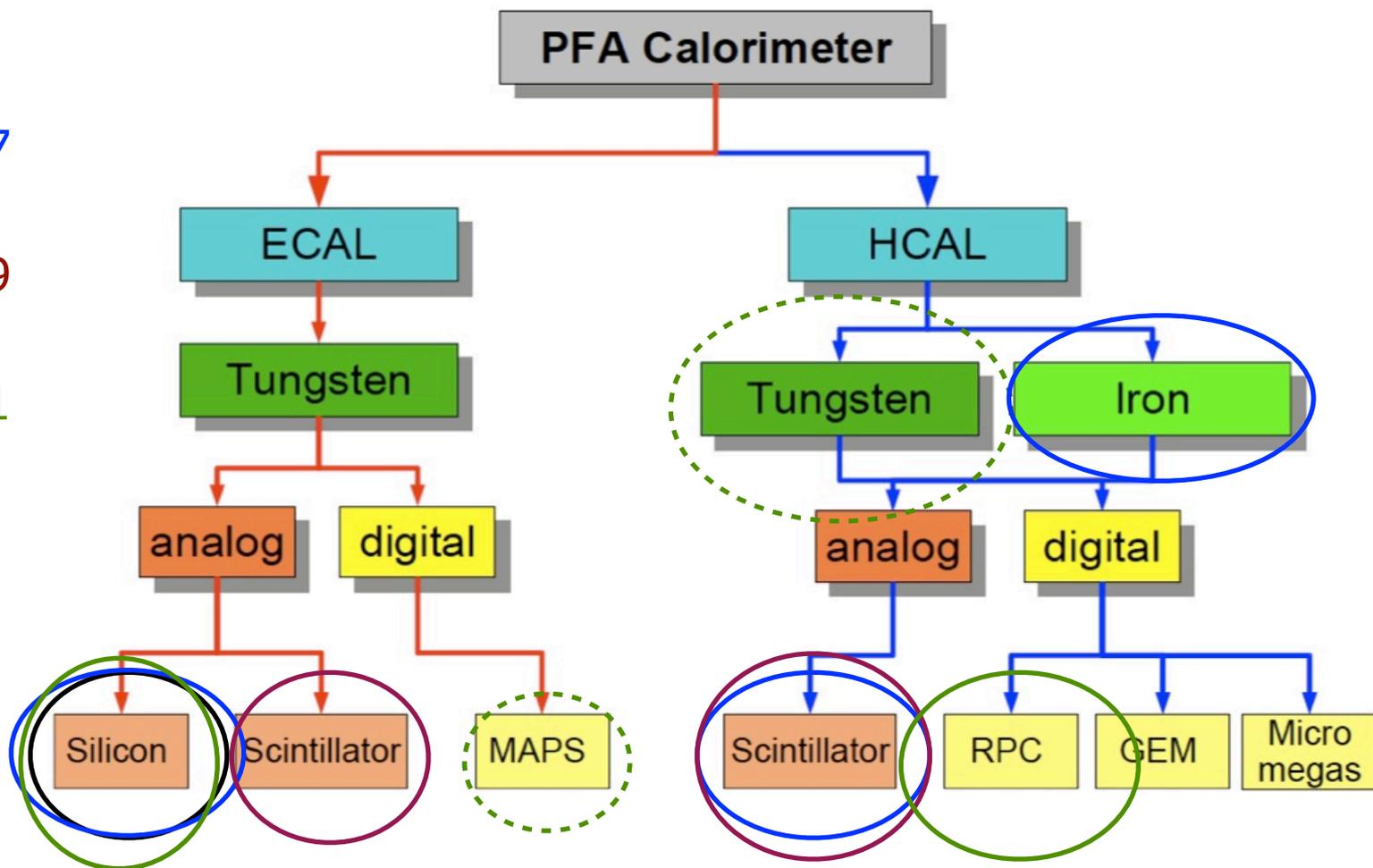
- 2005
- 2006-07
- 2008-09

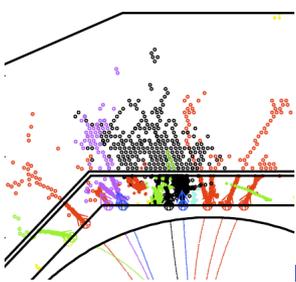




# Test beam status

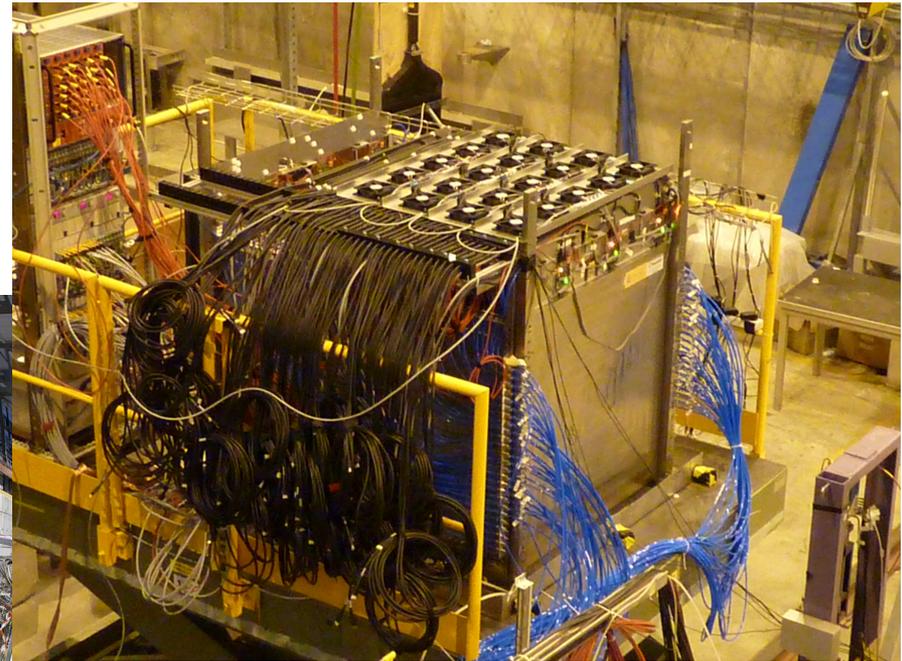
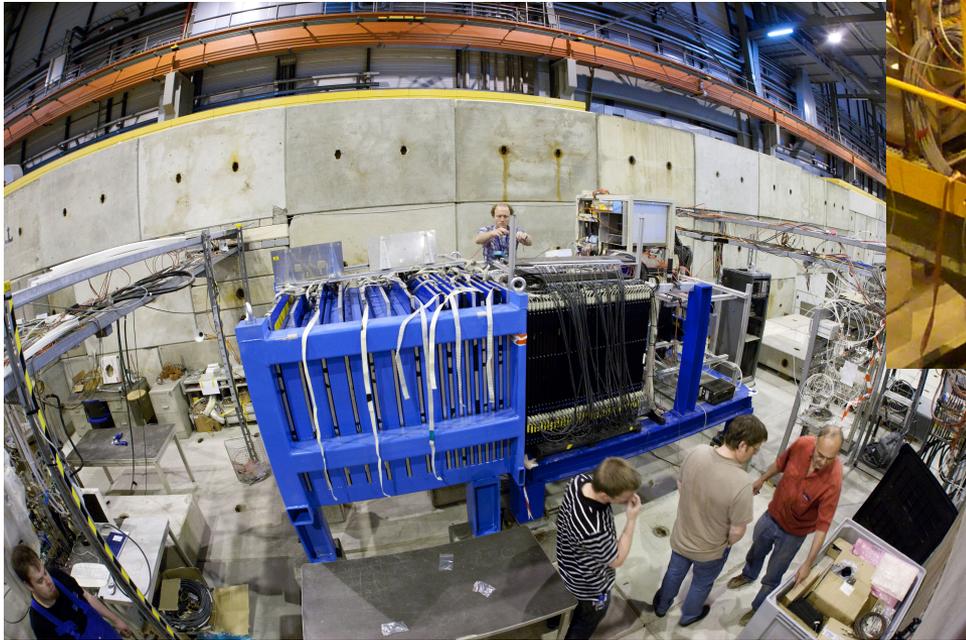
- 2005
- 2006-07
- 2008-09
- 2010-11

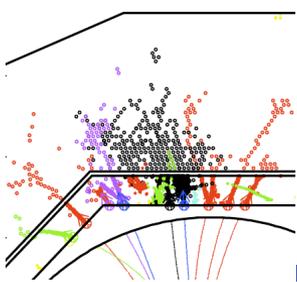




# New test beam set-ups

- DHCAL at FNAL: completed
- SDHCAL, W AHCAL at CERN

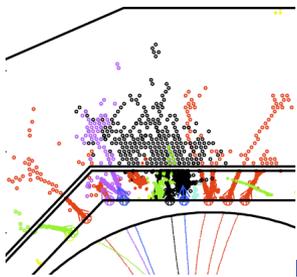




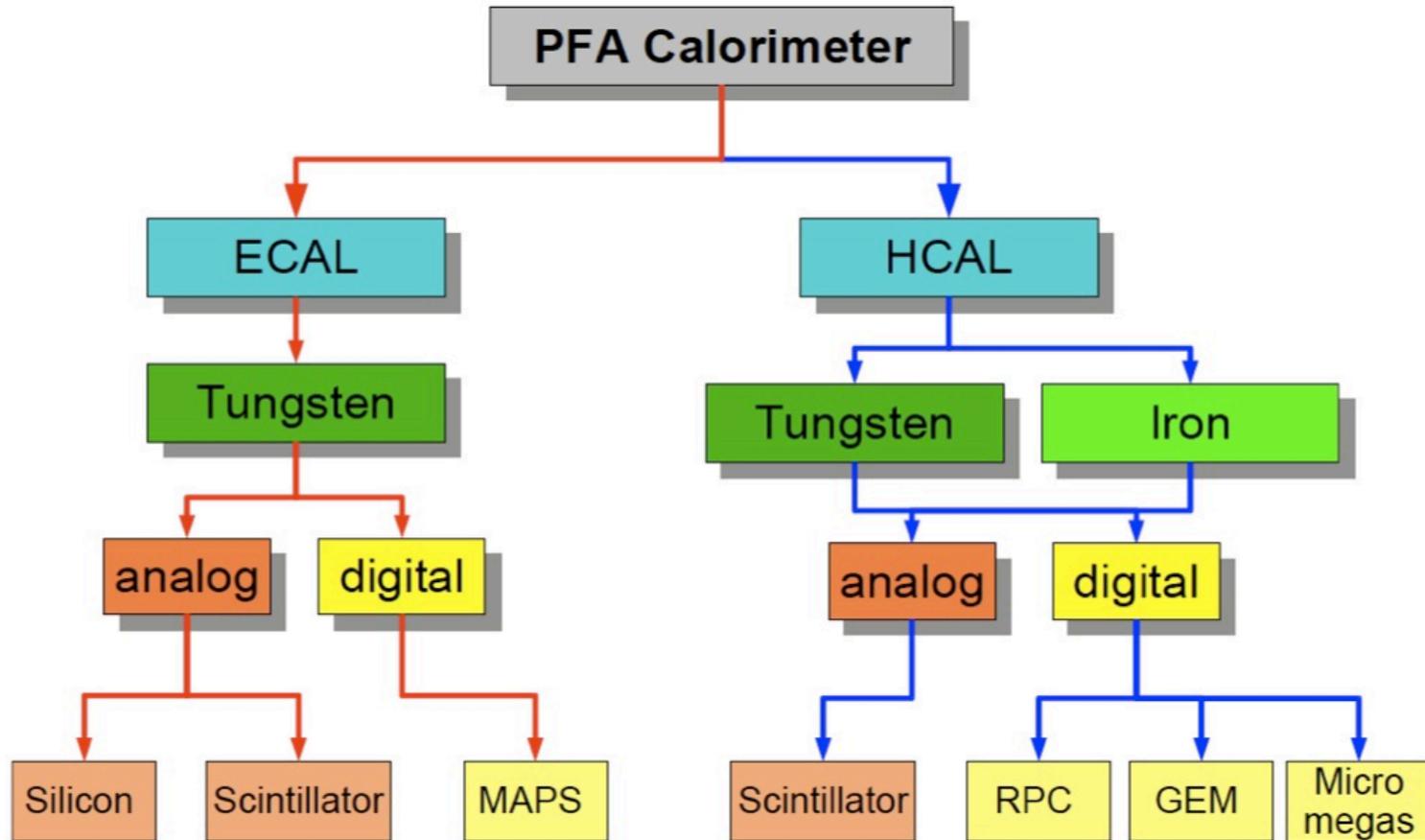
# Test beams 2011-12

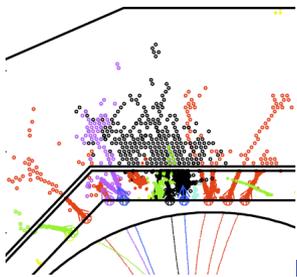
- Enough time, but exhaustive effort 2011 at FNAL
- FNAL beams shut down in spring 2013 for about a year
- Very limited beam time at CERN 2011
- Expect similar in 2012
- Shut-down 2013-14 likely
- Go and get your T-shirt!





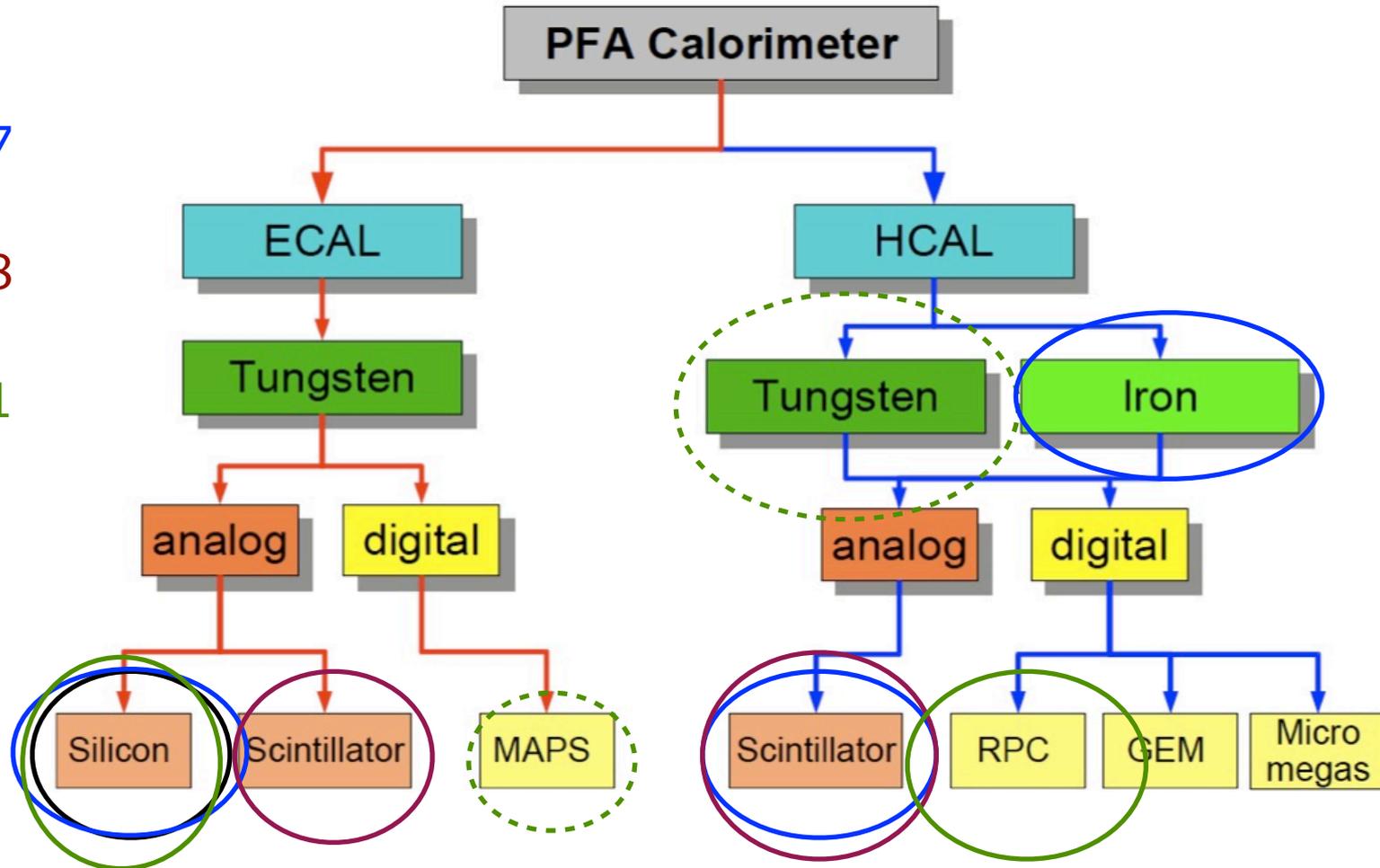
# Goals 2012

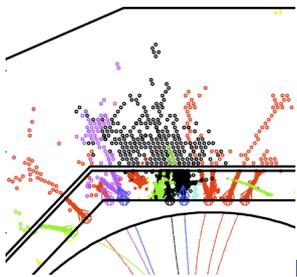




# Goals 2012

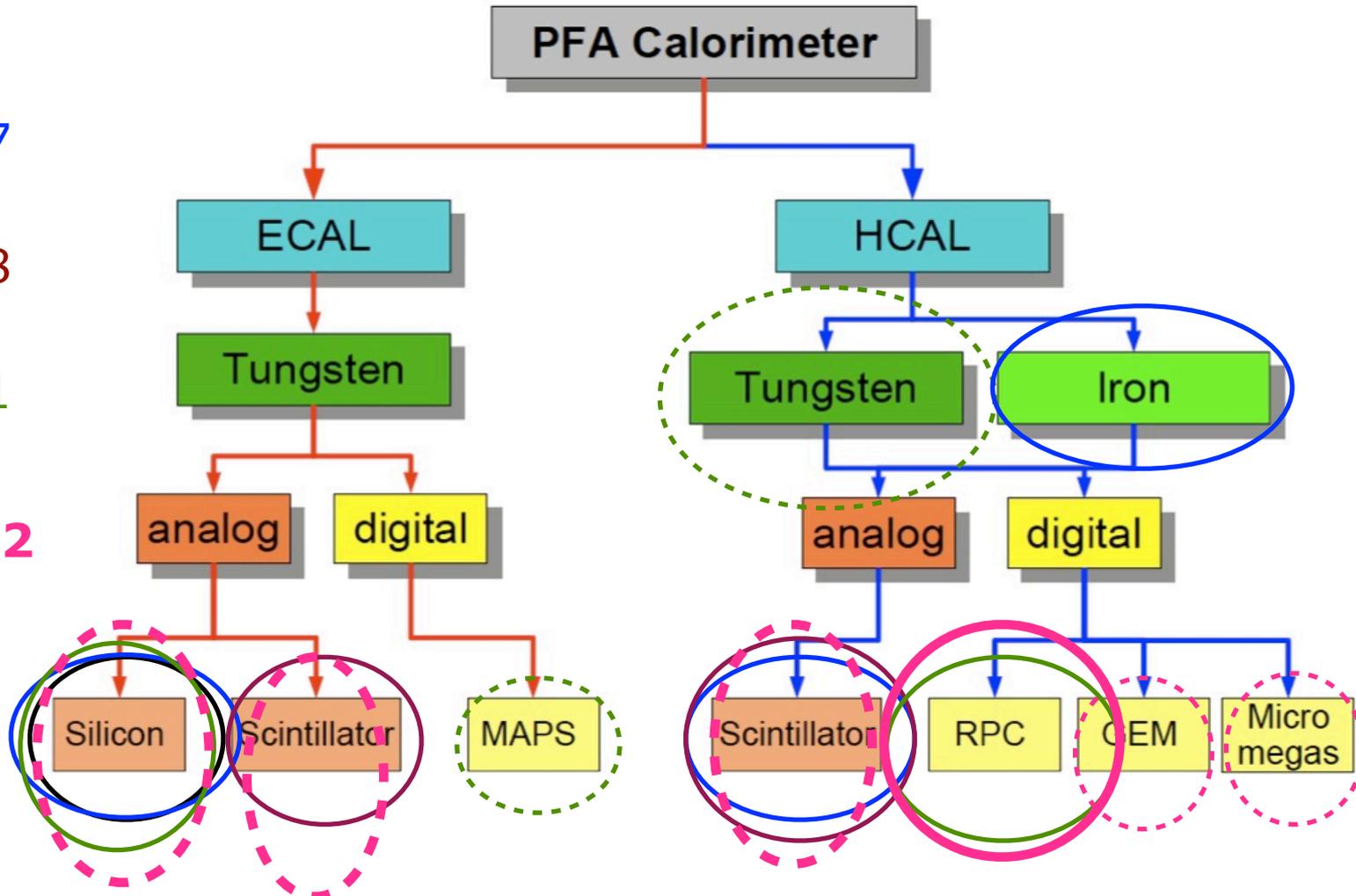
- 2005
- 2006-07
- 2007-08
- 2010-11

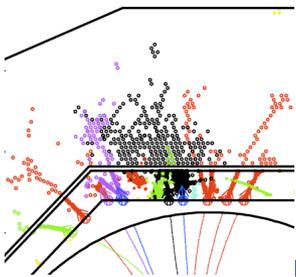




# Goals 2012

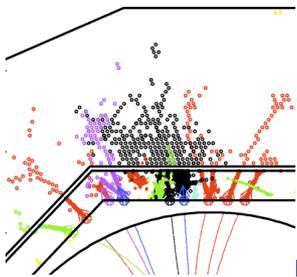
- 2005
- 2006-07
- 2007-08
- 2010-11
- **2011-12**





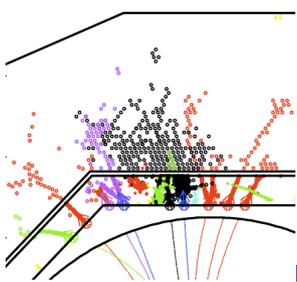
# Towards detector baseline docs

- Spring 2012: CALICE assessment of technology readiness
- **Established performance:** energy resolution, linearity, uniformity, two particle separation
- **Validated simulation:** longitudinal and transverse shower profiles, response, linearity and resolution, for electrons and hadrons
- **Operational experience:** dead channels, noise, stability, monitoring and calibration
- **Scalable technology solutions:** power and heat reduction, low volume interfaces, data reduction, mechanical structures, dead spaces, services and supplies
- **Open R&D issues:** analysis and R&D to be completed before a first pre/production prototype can be built, cost reduction and industrialization issues
- Expect an external review (PRC or ECFA) in ~ April
- Technology baselines: ILD before mid 2012, SiD similar
- Latest test beam results for DBD: fall



# Emerging picture

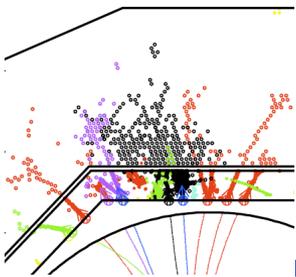
- We foresee to propose 2 ECAL and 2 HCAL baseline options
- The sDHCAL will be the only full size second generation prototype exposed to test beams
  - data taking and analysis schedules are ambitious
  - build validation on DHCAL results, too, combined runs
- The Si W ECAL, Scint W ECAL and Scint AHCAL have physics prototype test beam results and prepare technical prototype demonstrators
  - Si ECal and Sci E/HCal: common chip development
  - Sci E/HCal: common boards, Si/Sci ECAL common W mechanics
  - will rely on sDHCAL for proof of system aspects
- Combined data: SiW E + A/D HCAL, Si/Sci E + AHCAL only
- Alternatives: proof of principle for MAPS, GEMs,  $\mu$ -megas



# Emerging picture



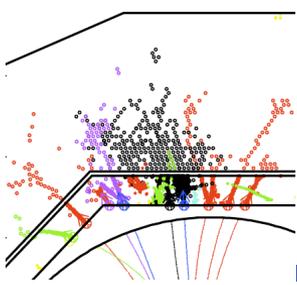
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# Software baseline

- Following previous CALICE meeting, ILD took salomonic decision and avoids singling out a baseline
- All main options shall be evaluated in physics studies
- Anyway: basic particle and jet energy performance will be discussed for all options
- Significant progress w.r.t. LOI, esp
- What counts now is that we deliver!
- Realistic simulations reflecting
  - design solutions realized in technology prototypes
  - performance validated in test beams
- Contributions to the reconstruction

# Publications



TWiki > CALICE Web > SpeakersBureau > CaliceNotesStatus (09-Sep-2011, DavidWard)

## Calice Analysis Notes - Status

| Status | coordinating author | Subject   |
|--------|---------------------|-----------|
| CAN001 | Ward                | ECAL ar   |
| CAN002 | Meyer               | AHCAL     |
| CAN003 | Garutti             | AHCAL     |
| CAN004 | Lima                | Combin    |
| CAN005 | Jeans               | ScECAL    |
| CAN006 | Jeans               | ScECAL    |
| CAN007 | Jeans               | ScECAL    |
| CAN008 | Carloganu           | ECAL el   |
| CAN009 | d'Ascenzo           | AHCAL     |
| CAN010 | Meyer               | AHCAL     |
| CAN011 | Garutti             | AHCAL     |
| CAN012 | Jeans               | ScECAL    |
| CAN013 | Simon               | AHCAL     |
| CAN014 | Meyer -> Garutti    | AHCAL     |
| CAN015 | Simon               | AHCAL     |
| CAN016 | Coterra-> Uozumi    | ScECAL    |
| CAN017 | Faucci Giannelli    | SiW EC.   |
| CAN018 | Sefkow              | Calibrati |
| CAN019 | Francis             | TCMT w    |
| CAN020 | Ward                | Pions in  |

|           |                                     |                    |                   |
|-----------|-------------------------------------|--------------------|-------------------|
| CAN021    | being published with CAN015, CAN028 | Seidel             | AHCAL energy re   |
| CAN022    | Should be published                 | Weuste             | Track segments i  |
| CAN023    | Should publish ?                    | Fehr               | Tracking using H  |
| CAN024    | Published                           | Markin             | Pandora PFA wit   |
| CAN025    | still under review                  | Doublet            | Hadronic shower   |
| CAN026    | Should be published                 | Kaplan             | Hadronic shower   |
| CAN027    | Published (CAN never appeared)      |                    | ECAL irradiation  |
| CAN028    | Being published with CAN015, CAN021 | Chadeyeva          | HCAL Software C   |
| CAN030-32 | Early days...                       | Repond, Xia, Bilki | DHCAL first anal  |
| CAN033    | Early days...                       | Simon              | First T3B Results |
| CAN034    | Early days...                       | Feege              | Pion showers in A |
| CAN035    | under review en route to paper      | Chadeyeva,Seidel   | Combined s/w co   |
| CAN036    | not yet under review                | Lucaci-Timoce      | WHCAL studies     |

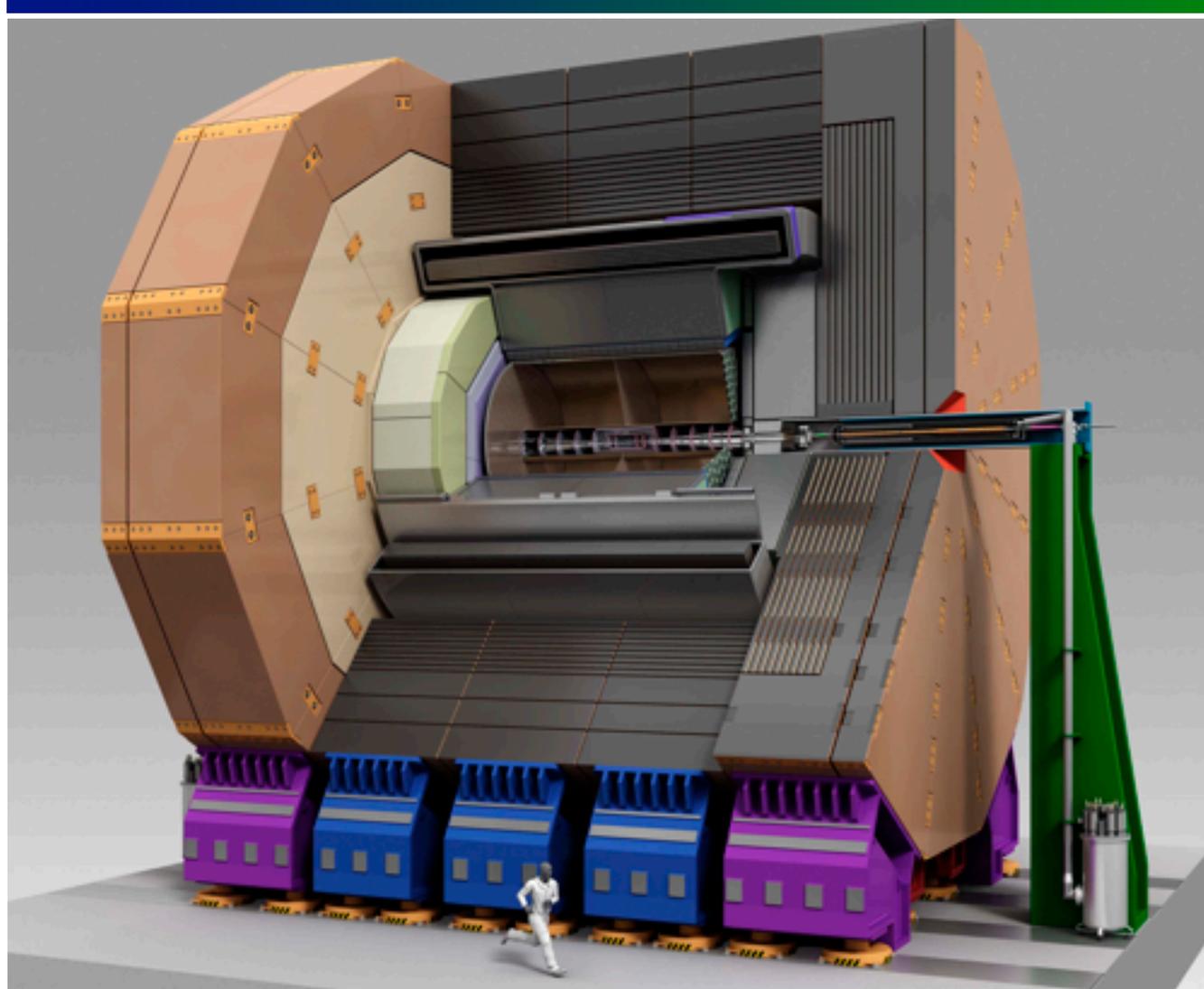
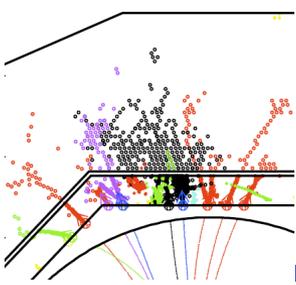
### Comments

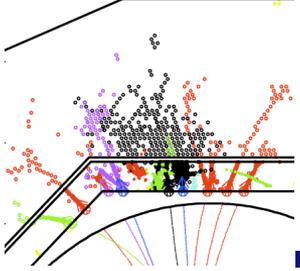
- From Tohru about [ScECAL](#) plans (CAN005, 006, 007, 012, 016):  
"Satoru is right now preparing the paper which is DESY data concern. For the FNAL data, we need to be published by a Doctor student in a year."
- CAN009, 015, 021, 028 under control (MPI)?
- Should definitely plan to publish CAN022, CAN026
- Is CAN017 worth publishing? Needs more work?
- Is CAN023 worth publishing? Probably yes.
- CAN030-034 too early to decide

-- [DavidWard](#) - 24-May-2011

Topic revision: r4 - 09-Sep-2011 - 17:07:56 - [DavidWard](#)

# Interim Report





# Conclusion

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- Interesting times - dynamic scientific and political environment
- Culminating test beam effort and technical readiness
- Increasing publication output
- Success of CALICE will be judged primarily on
  - contributions to detector reports
  - publications
  - demonstrated impact on shower simulation
- and depend on our collaborative spirit
- So: Enjoy the meeting