

# Proposals of joint actions concerning R&D

EU-CERN:ESFRI→Road Map for Particle Physics:

SLHC, ILC, CLIC, B-Factories

SPAIN:

2005: Thematic Network created. ILC International Meeting in Valencia

2007-present :

Thematic network for Future Accelerators working well

Participation in all the International ILC Workshops

National meetings ( next in Madrid 2-4 December)

Contribution to the Global Design Effort

Participation in the Finance Agencies (FALC)

R&D projects from National Program and EU Programs

Participation at R&D International Collaborations ( DEPFET, SiLC, CALICE)

Sign of Lol for ILC

Forward tracker and End Cap calorimeter interest, internationally recognized

...

# Coordinated FLC detector- effort in Spain



## Silicon for Large Colliders

IFIC, IFCA (since 2005), UB, CNM, USC

IFCA → EUDET member, several associates

New EU project: AIDA



Strong Spanish participation in DEPFET

IFIC (since 2005)

USC, UB, URL, CNM (since 2008)

IFCA soon

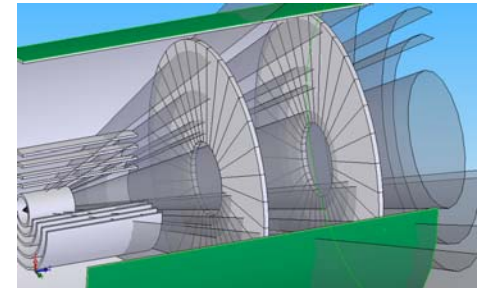
## CALICE

CIEMAT Madrid

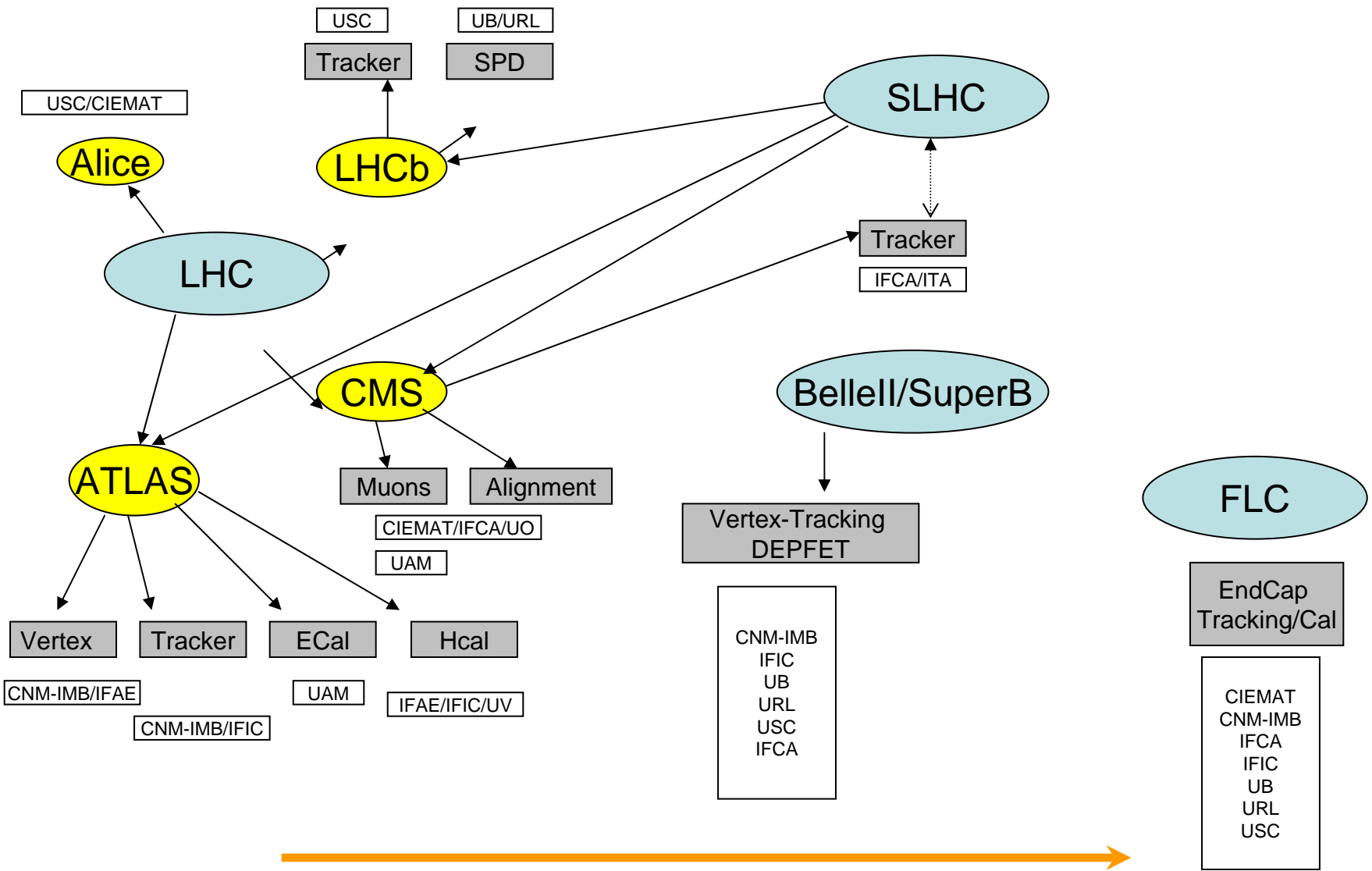
***and activities in  
accelerators R&D***

**Coordinated effort :**

- regular meetings
- funding/projects
- R&D interests
- the forward tracker...



# Spanish interest and evolution



# CMS Upgrade: Outer Silicon Tracker

- Since 2009 part of two official R& D projects for the upgraded CMS Tracker.

- R&D Targets:

- **Sensors**

- Thin sensor, Short strips, embeded Optical Fiber Sensors (OFS), INTEGRATED PITCH ADAPTORS



- **Module engineering**

- Integration of structural and environmental monitor based on OFS in CFC
- Laser-based alignment
- Powering, EM safe module design.



LARGE OVERLAP WITH FP7 AIDA R&D



### Infrastructure, for whom?

AIDA must be supported by,  
and the proposal must cater to,  
the whole detector R&D community

(s)LHC →

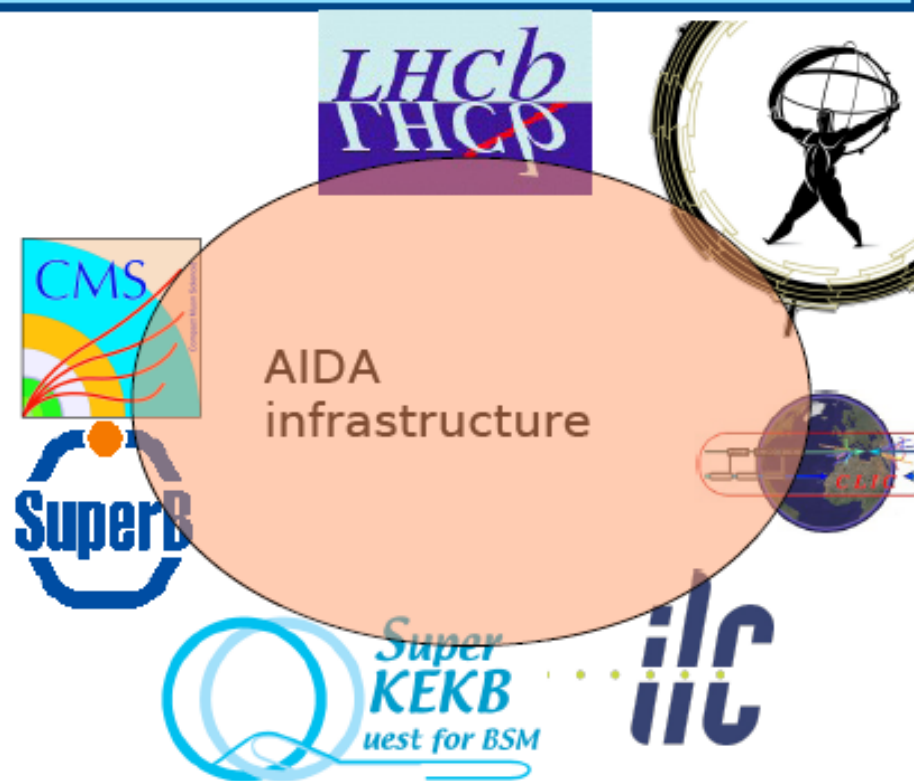
- ✓ ALICE (sALICE?)
- ✓ ATLAS (WP9)
- ✓ CMS (WP2)
- ✓ LHCb (WP9)

Future  $e+e-$  machines →

- ✓ ILC (WP9)
- ✓ CLIC (strong overlap with ILC)

Super B-factories →

- ✓ Belle-II (WP9)
- ✓ SuperB (WP8)
- ✓ Accelerator-based neutrino experiments (WP8)



Caters to communities developing detectors that are to be installed within the AIDA life-time (ATLAS IBL, LHCb VELO upgrade, Belle-II PXD) and to others pursuing exciting new concepts that may yield the detector technology of the next (or next-to-next) generation of experiments)

# Spanish participation

**WP3.2 3D interconnections**

CNM  
UB

**WP9.3 Precise Pixel Detectors**

USC IFIC  
IFAE IFCA

**WP9.4 Silicon Tracking**

CNM  
IFIC  
IFCA  
UB

**WP9.5 Granular Calorimetry**

CIEMAT

EC will evaluate the validity of CPAN as a JRU in the negotiation phase

- ✓ if AIDA is funded
- ✓ in ~4 months

26/11/2009

A.Ruiz | Jornadas Consolidar

# BACKUP

# The Landscape: Lepton Colliders

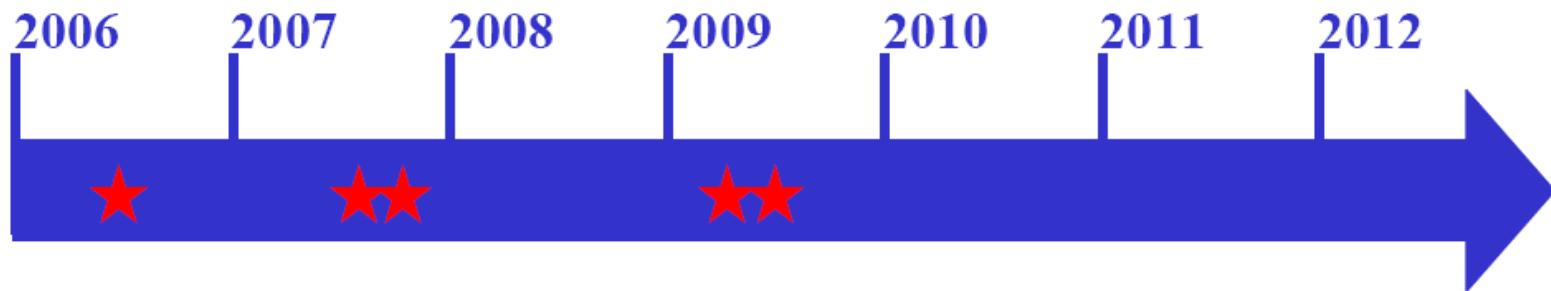


- At least three possible options for a Lepton Collider have been discussed:
  - **ILC superconducting linear collider**
  - **CLIC or a variation of it based on warm technology**
  - **Muon Collider**
- All are aiming to provide documentation on the 2012 timescale or earlier
- These three options are serious proposals and we cannot dismiss them
- **However, only the ILC is "shovel ready" (already today).**

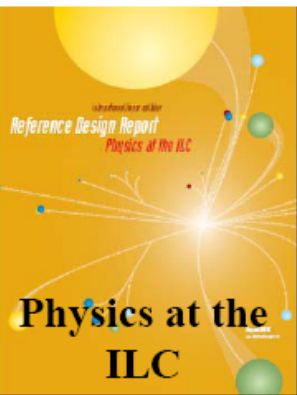
**If the LHC says 'go!' – even if that signal comes as late as 2015 – the ILC is the only viable option!**



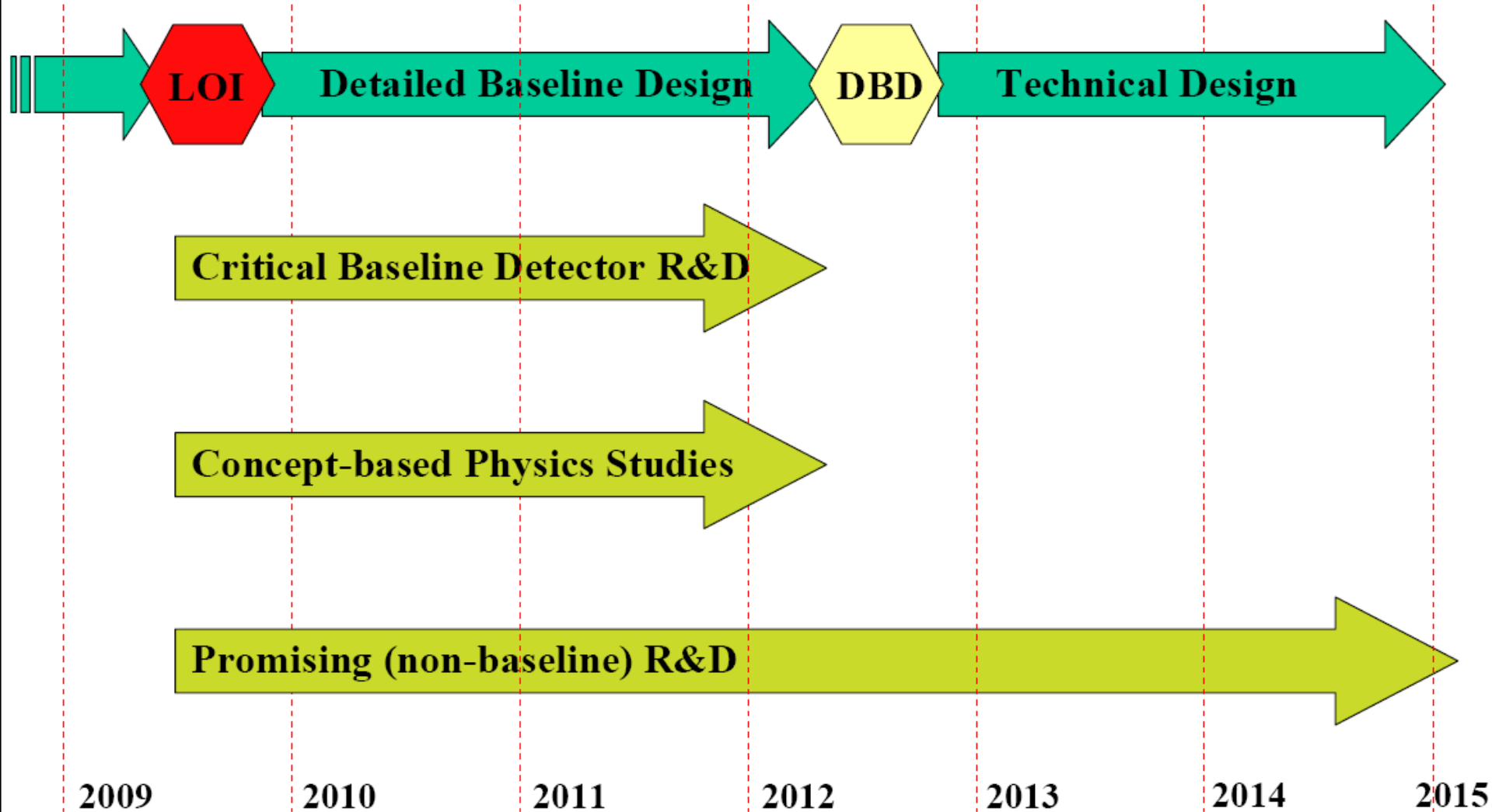
# Recent Timeline



- **May 2006: Submission of Detector Outline Document by 4 concepts**
- **August 2007: Submission of Reference Design Report**
- **Fall 2007: Appointment of Research Director**
- **All of 2007: three independent WWS Detector R&D Reviews**
- **Spring 2008: IDAG formed**
- **ECFA WS June 2008: Start of IDAG validation process**
- **March 31, 2009: Submission of three LOIs**
- **Today: validation process complete**



# A Three-Fold Path



- **Three paths listed in decreasing priority**