

Towards the European Coordination of the CMB program

WELCOME

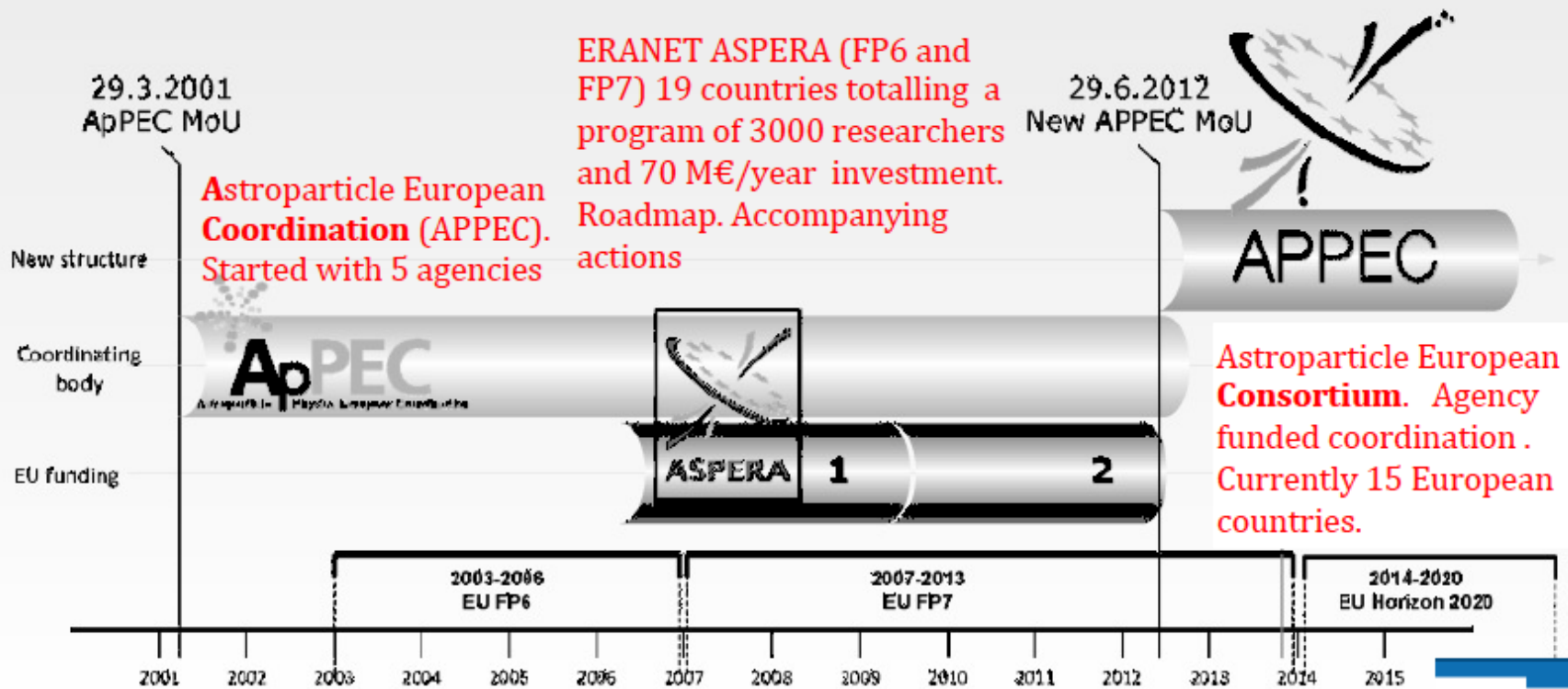
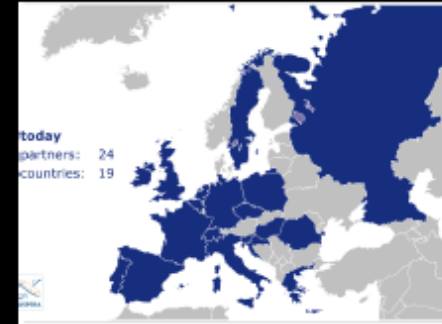
JL. Puget , A. Challinor ,
R.Sunyaev , L. Verde ,
N. Aghanim , F.Bouchet ,
JP. Leahy , JC. Hamilton,
A.Monfardini , JA. Rubiño-Martin ,
E.Batistelli , S. Masi, J. Delabrouille ,
P.deBernardis , J. Carlstrom , M.Devlin,
S. Hanany, A.Kogut , M. Hazumi ,
PG.Tizien, M. Bersanelli , E. Martinez ,
M.Griffin , J.Baselmans , K. Irwin



Villa Finaly , Florence
31stAugust-1st September, 2015

Dant's Inferno by Boticelli

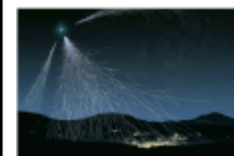
A short history of European Astroparticle Physics coordination From ApPEC to APPEC



APPEC is very proactive for global coordination:

- ✓ Workshops (Brussels, Paris),
- ✓ OECD/GSF group APIF

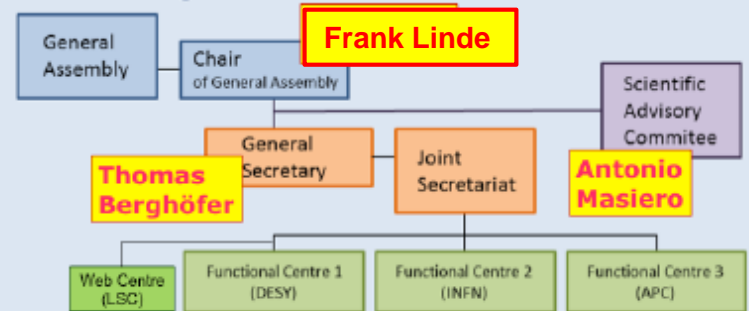
Astronet (astrophysics) plans to follow a similar scheme.





APPEC Structure

ApPEC – organisational chart



APPEC 2014

Functional Centres:

- APC
- DESY
- LNGS
- LSC

Strategic Actions,
Interdisciplinarity
and Outreach

International Contact,
Computing,
and Industrial Relations

Networking,
Theory and
Education centre

Electronic
Tools and Web

Outreach → STFC

The European Astroparticle Physics Roadmaps From 2008 to 2016



From the
Nature article



- **Science Vision document the “Seven Magnificent”** 2008
 - An attempt to define the field , no priorities
 - CMB and Dark Energy discussed but not in the 7
- **1st Roadmap** 2011
 - **3 categories (time and scale ordered)**
 - I. Preserve the then ongoing upgrades: advanced GW antennas, dark matter and double beta
 - II. The next generation of large CR programs: CTA, KM3Net and IceCube, AUGER upgrade
 - III. Promote globalisation for large projects: Next generation large neutrino detectors, Dark Energy and CMB
 - Input to European CERN strategy and national roadmaps
- **2nd roadmap a “resource aware roadmap”** 2016
 - A text in preparation by SAC, public early 2016
 - Community-agency workshop spring 2016
 - APPEC Roadmap summer 2016

Steps towards global coordination

The case of the neutrino

- 2014
 - P5 report released, 22 May
 - CERN Council approved Medium term plan 18 June
 - 1st International Meeting on Large Neutrino Infrastructures, Paris, 23-24 June (APPEC) (also ICFA and APPIC) agencies and PI's
 - Common press release setting opportunities and limiting conditions,
- 2015
 - 2nd International Meeting on Large Neutrino Infrastructures Fermilab, 20-21 April (Fermilab/APPEC)
 - Agencies impressed by the rapidity of the convergence
 - Global collaboration DUNE formed
 - May , signature at the White House of the agreement DOE-CERN on LHC and neutrino
- 2016
 - 3rd International Meeting on Large Neutrino Infrastructures KEK/Japan , 28-29 March

From the APPEC Scientific Advisory Committee (SAC)* Roadmap

Questions and future discoveries classified in 3 large domains.

We need to understand:

1. The origin and composition of the cosmos, test the theories of inflation, probe the nature of dark matter and energy
2. The cosmological role of the neutrino sector, the number, type, mixing and masses of ν .
3. The formation, evolution, merging and destruction of cosmic structures as extreme laboratories mixing energy scales, probing also the presence of new physics. Multi-messenger studies.

* A. Masiero (chair), Michal Ostrowski, Mauro Mezzetto, Gisela Anton, Laura Baudis, Jocelyn Monroe, **Petr Tiniakov**, Jo van den Brand, Patrick Sutton, Ramon Miquel, Zito Marco, Andrea Giuliani, Felix Aharonian, Pierre Binétruy, Ignatios Antoniadis, Yifang Wang, **Francis Halzen**, Hank Sobel, S.Katsanevas (APPEC)

Today, the first common meeting/workshop

ASTRONET-APPEC

- Goals of the meeting
 - Access the scientific urgencies
 - Talks and round table this morning
 - Make a census of current European efforts
 - Talks and round table this afternoon
 - Discuss the worldwide context
 - Talks and round table tomorrow morning
 - Discuss the technologies
 - Talks tomorrow afternoon
 - What next ?
 - Round table tomorrow afternoon
- And in particular gauge
 - Complementarities between ground and space
 - Complementarities between international efforts
- Prepare other European and Global meetings