Report su APPEC Horizon 2020 meeting

Berlino, Nov. 5, 2013

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(entrambi membri del gruppo di supporto per fondi esterni appena istituito e diretto da V. Vercesi)

Dates: from 04 November 2013 12:00 to 05 November 2013 18:00

Timezone: Europe/Berlin

Location: *DESY, Zeuthen*
Platanenallee 6
15738 Zeuthen
Germany
Room: S3

Additional info:

The implementation of the new Framework Programme for Research and Innovation (Horizon 2020) will be of crucial importance in defining the future funding opportunities in the field of Astroparticle physics. Many stakeholders are wondering what to expect.
APPEC invites all interested astroparticle physicists and friends to a community event to inform about the Horizon 2020 for Research and Innovation. Presentations by experts on the various funding instruments shall demonstrate European funding opportunities ranging from individual grants up to large collaborative projects and give advice on competitive proposal writing. In dedicated sessions astroparticle physicists will have the chance to discuss ideas for collaborative projects and coordinate proposals for future calls.

Struttura del meeting

- Informazioni su **Horizon 2020**
  - Le nuove call
  - Approfondimenti sulle slide scaricabili da: **https://indico.desy.de//event/APPEC_2013**

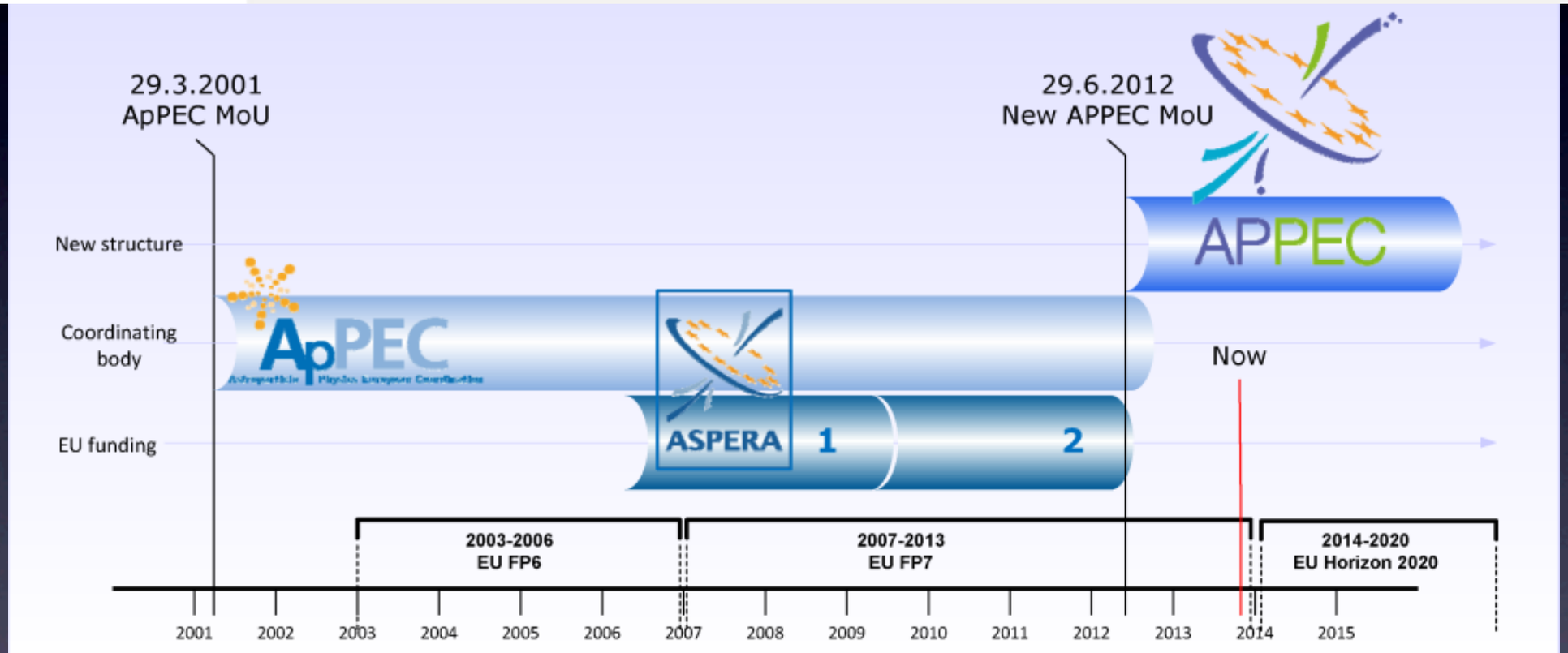
- **Sessioni parallele su:**
  - Underground, UnderWater-Ice, CR, Gamma, GW, Neutrini, Computing, Theory, Instrumentation

- Buona presenza INFN (almeno 12 persone)

APPEC

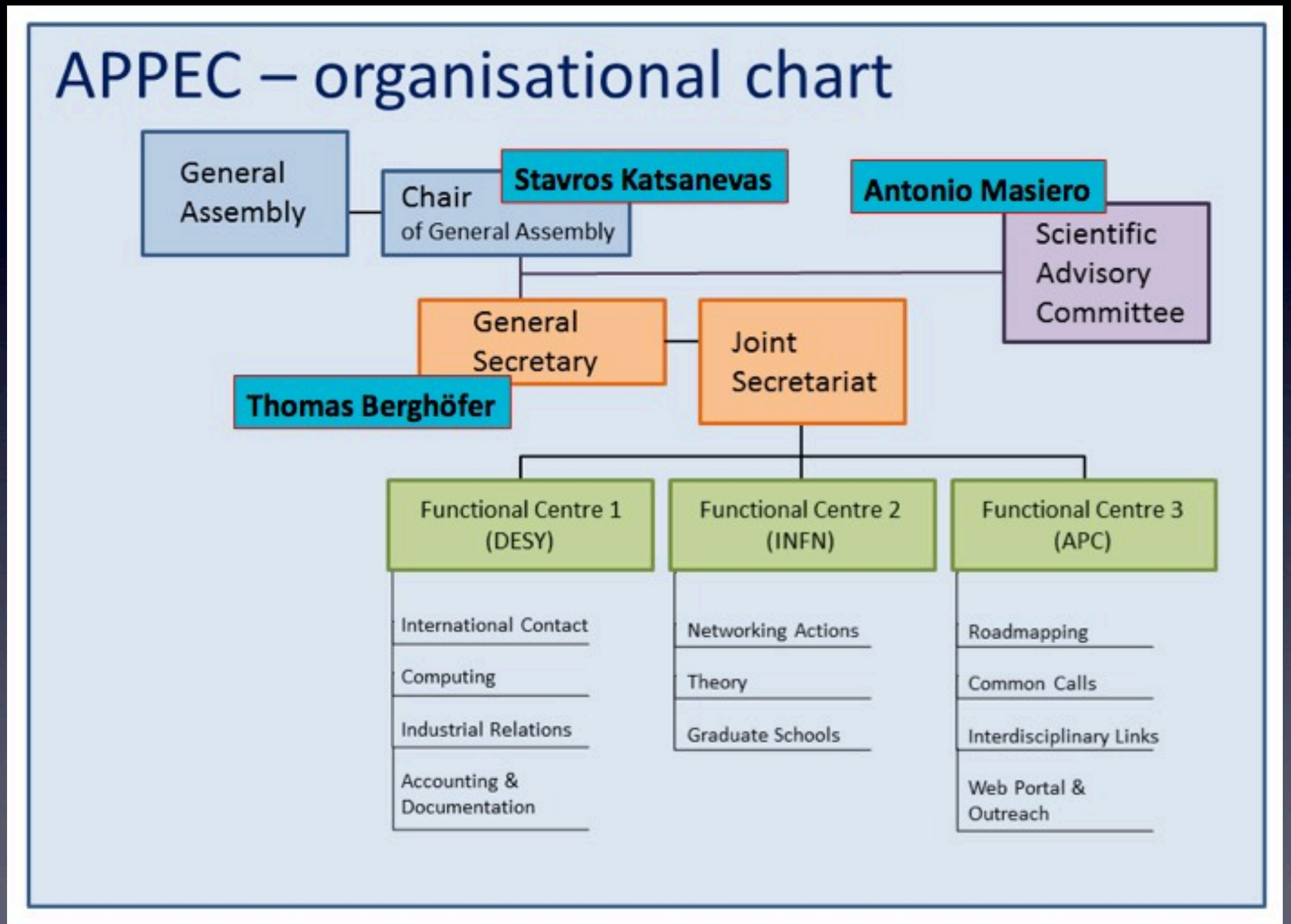
APPEC Astroparticle Physics European Consortium

Home About Science Strategy Infrastructures Industry Computing Multidisciplinarity Theory Communication Calls Documents

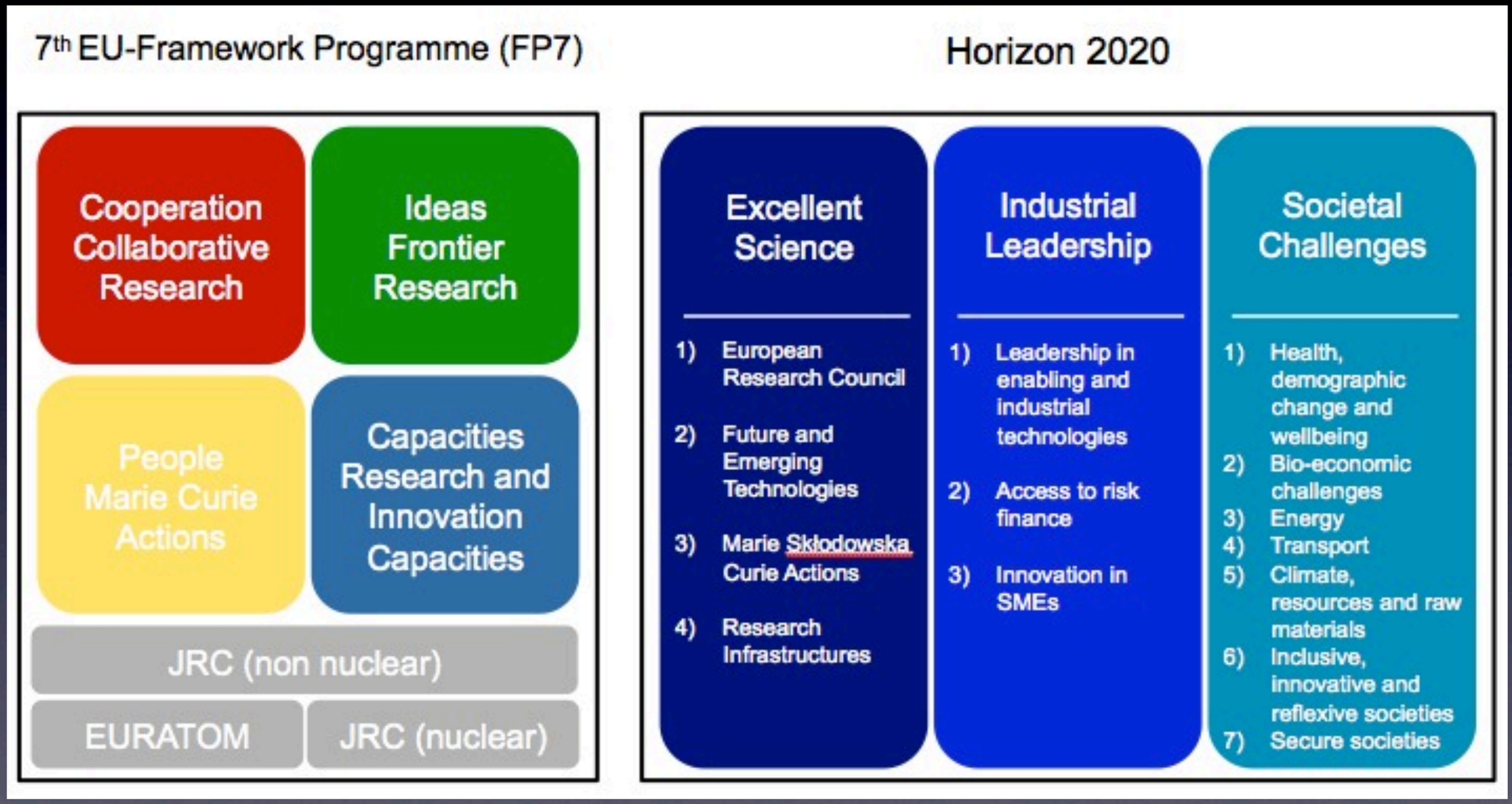


http://193.146.122.114:8888/appec/

Nuova struttura APPEC



Confronto FP7 - Horizon 2020



Deadlines

- Horizon 2020 parte Jan. 1, 14
  - Prime call: Dec. 11, 2013
  - Prime dead-lines (variabili per tipo di call): Apr. 2014

Budgets

Programme structure and budget allocation in Horizon 2020

Priority: I. Excellent Science — 31,73%

- Specific objective ERC — 17,00%
- FET — 3,50%
- MSC — 8,00%
- RIS — 3,23%

II. Industrial Leadership — 22,09%

- Enabling and Industrial Technologies (LEIT) — 17,60%
  ICT, Nanotechn. Materials, Biotechnology, Manufacturing and Processing, and Space
- Risk Finance — 3,69%
- SME — 0,80%

III. Societal Challenges — 38,53%

- Health, dem change, wellbeing — 9,70%
- … Bioeconomy — 5,00%
- Energy — 7,70%
- Transport — 8,23%
- Climate action, Environment … — 4,00%
- …Societies — 1,70%
- Secure Societies… — 2,20%

- Widening Participation — 1,06%
- Science with and for Society — 0,60%
- JRC — 2,47%
- EIT — 3,52%

Total budget:

Ca. 70 billion €

EP: 18 Nov

For 7 years in constant 2011 prices

Sintesi ERC (Excellent science)

ERC: European Research Council			
Tipo	Anzianità	Durata	Budget Max
Starting	2-7	5	2 M€
Consolidator	7-12	5	2.75 M€
Advanced	>10	5	3.5 M€
Synergy	2-4 PIs	6	15 M€
PoC	ERC	1-1.5	150 k€

NO 2014

Physical Science 44%
Life Science 39%
Social Science and Humanities 17%

http://erc.europa.eu/funding-schemes FUNDING SCHEMES
http://erc.europa.eu/national-contact-points CONTACT POINTS NAZIONALI (APRE per l'ITALIA)

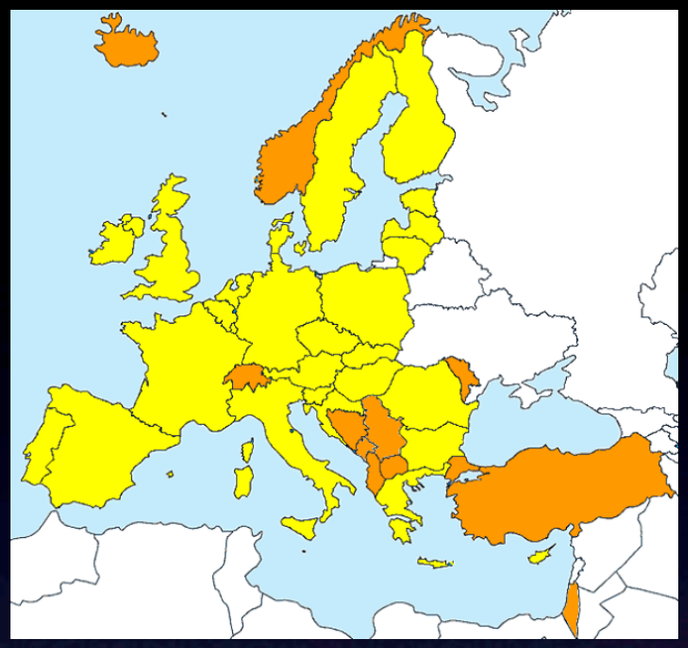
Marie Skłodowska-Curie Actions

FP7	Horizon 2020	Objectives
Initial Training Networks **(ITN)**	Innovative Training Networks **(ITN)**	Doctoral and initial training of researchers
• Intra-European Fellowships for Career Development **(IEF)** • International Outgoing Fellowships for Career Development **(IOF)** • International Incoming Fellowships **(IIF)** • Career Integration Grants **(CIG)**	Individual Fellowships **(IF)**	Individual fellowships for most promising experienced researchers undertaking international and inter-sector mobility
• Industry-Academia Partnerships and Pathways **(IAPP)** • International Research Staff Exchange Scheme **(IRSES)**	Research and Innovation Staff Exchange **(RISE)**	International and inter-sector cooperation by means of research and innovation staff exchange
Co-funding of Regional, National and International Programmes **(COFUND)**	Co-funding of Regional, National and International Programmes **(COFUND)**	Co-funding of regional, national and international programmes
Researchers' Night **(NIGHT)**	Researchers' Night **(NIGHT)**	European Researchers' Night

Sintesi M. Curie

- Qualunque campo di ricerca
- Mobilità: i candidati devono **spostarsi fra paesi diversi**
- Giovanissimi senza PhD o (giovani) ricercatori
- Host driven: **International Traininig Networks (ITN)**
  Consorzi di istituti, accademici e/o non
- Individual Fellowships **(IF)**
- Research and Innovation Exchange **(RISE)**
- Cofund of National and Regional Programs **(COFUND)**
- Notte dei ricercatori **(NIGHT)**

Member states (MS)
Associated Countries (AC)



I T N

ETN: European Training Network
Almeno 3 istituti e 3 paesi diversi
EID: European Industrial Doctorate
Almeno 1 istituto e 1 industria, 2 paesi diversi
Almeno 1 istituto può dare il titolo
EJD: European Joint Doctorate
Almeno 3 istituti in 3 paesi diversi
3 istituti posso dare il titolo

Per tutti: programma **4 anni,** supporto per giovani da 3 a 36 mesi

I F

- **European fellowships (EF)**
  - 12-24 mesi in Europa (mobilità)
  - CRP: career restart panel (per chi si è fermato)
  - RP: reintegration panel (rientro a casa)
- **Global fellowships (GF)**
  - 12 mesi fuori, 12 in Europa

RISE

- scambio fra istituto, preferibilmente di settori diversi

COFUND

- cofinanziamento di iniziative locali o regionali su dottorati, fellow

Scadenze M. Curie

	Budget	Opening date	Closing date
ITN	405.18 Mio. €	11 December, 2013	April, 2014
IF	240.5 Mio. €	12 March, 2014	September, 2014
RISE	70 Mio. €	11 December, 2013	April, 2014
COFUND	80 Mio. €	10 April, 2014	November, 2014
NIGHT	8 Mio. €	11 December, 2013	March, 2014

Date ancora da confermare! Controllare sul sito!

http://ec.europa.eu/research/mariecurieactions/

ESFRI

- **ESFRI:** European Strategy Forum for Research Infrastructure
  - Un processo complesso che dura vari anni
- In vari stadi del processo:
  - **ESS:** European spallation source (vedi dopo)
  - **SKA:** Radio Astronomia
  - **CTA:** Gamma astronomia
  - **ELI:** Extreme Light Infrastructure (laser, paesi est europa)
  - *Non ora:* **Km3Net**
  - **ONDE GRAVITAZIONALI mature per ESFRI**
  - **Gran Sasso sottomesso al GSO (Group of Senior Officials to RI)**

Future and Emerging technologies (FET)

- Due pilastri (Flagship): Graphene, Human brain
  - Non facile inserirsi per l'INFN

DG Connect : http://ec.europa.eu/dgs/connect/

FET Portal : http://ec.europa.eu/dgs/connect/

Connect Advisory Forum :
http://cordis.europa.eu/fp7/ict/docs/caf-mandate-rm.pdf

Graphene Flagship : http://www.graphene-flagship.eu/

Human Brain Project : https://www.humanbrainproject.eu/fr

Sessioni parallele

- Underground detectors (doppio beta, dark matter) Speaker: L. Baudis
- UnderH_2O (water+ice) Speaker: P. Coyle
- Cosmic rays Speaker: A. Haungs
- Gamma rays Speaker: J. Knapp
- Gravitational waves Speaker: M. Punturo
- Neutrini Speaker: M. Mezzetto
- Computing Speaker: G. Lamanna (vedi D. Menasce oggi)
- Theory Speaker: A. Masiero
- Instrumentation Contact: R. Miquel (chiesto in aggiunta)

Underground detectors: Baudis

- **Dark Matter** e **Doppio Beta.** Decisioni:
  - **ITN:** ***Underground Labs subito***
    - Nel **2015** potenzialmente Dark Matter e/o Doppio Beta
      - Da evitare ovviamente la competizione, sinergia possibile
      - Ne esiste una: www.invisibles.eu
  - **ESFRI:** riflessione non conclusiva
    - Probabilmente da inserire in quella 'underground labs' 2016 ?
  - I3 oltre GW e UL
    - Da pensarci per il 2016 sinergia doppio beta + dark matter
  - RI cluster, e-Infrastructure
    - NO

UnderH_2O

- Processo per ESFRI dal 2006
  - Segnali non chiari e contraddittori....
  - Lo speaker (francese) non ha MAI nominato il sito italiano

KM3NeT Past & Future

Design Study (with ESS):	2006-2009	9 M€
Preparatory Phase:	2008-2012	5 M€
Implementation Phase:		
Phase 1 (10-20% IceCube)	2013-2016	33 M€ (ERDF 20 M€, 2 sites)
Phase 1.5 (2 blocks ~IceCube)	2016-2018	+60-70 M€
Phase 2 (6 blocks ~few IceCube)	2018-2022	+100 M€

Raggi cosmici (1)

Working group checklist

- Will we do a MSCA and of which type ? (ITN, COFUND,RISE)

  IDAPP – European Graduate School

  IDPASC – international graduate program Portugal based not specific CR activities (except individual grants)

- Can we propose a Design Study ?
- Is there a present/future ESFRI link ? PP? Implementation ?

  AugerNext – JEM-EUSO (R&D for large next generation global EAS exp)

  Non subito **what is the sequence of applications?**

- Can we propose an I3 beyond GW, UL

  CTA, Neutrini ? **Multimessenger (Astroparticle Astronomy)**

- Can we participate in an RI cluster ?

  PAO – TA - JEM-EUSO or CR(new)-CTA-IceCube(Km3Net)?

  Dati pubblici ? **common data policies!**

  Banca dati di sciami simulati - sinergia con computing

Raggi cosmici (II)

Working group checklist

- Can we bid to an e-infrastructure ? (calls 1 and 9)

  computing in APP ← CR would participate

  Banca dati di sciami simulati

  parallelizing CORSIKA, GPU-CORSIKA, etc…

  data preservation …. KCDC and more…

- Can we participate in a FET open ?

  photosensors?

  Communication system?

  Fast low power ADCs, GHz-DAQ?

- What are the global aspects of our research ?

  obvious….next generation global EECR exp.

- What are the R&D themes that an ERANET+ could support ?
- Can we apply for FET's, LEITs, societal challenge R&D ?

  contribution/part within technology group

Gamma rays: Knapp

- Integralmente dedicato a CTA
  - 2014-2015 anni cruciali per la partenza di CTA
  - Attualmente 1100 persone, 28 paesi, 170 istituti
    - Ancora in crescita
  - "Interim support to move CTA into implementation phase"

Year	2014 (partial)	2015	2016 (partial)	Total
	(T€)	(T€)	(T€)	(T€)
Project management personnel	300	1600	800	2700
Committee support and travel	60	240	120	420
Legal consulting and suppport	50	150	80	280
Project management support, tools, consulting	160	300	100	560
Setting up of final legal entity, headquarters	0	450	0	450
Design of site infrastructure, preparation of calls for bids, and local coordination in host countries	400	950	300	1650
RAMS conculting and testing	180	280	80	540
Data management support, tools, consulting	100	220	110	430
PMT development and pre-series production	150	1080	0	1230
Silicon sensor development and pre-series production	150	600	0	750
Mirror facet pre-series production	180	620	0	800
Support of outreach and dissemination activities	20	40	20	80
Total	**1750**	**6530**	**1610**	**9890**

Onde gravitazionali: Punturo

- La linea di gruppo 2 con la più solida tradizione in Europa

Conclusions

- The promotion of the ET project for ASPERA roadmap to ESFRI Roadmap is our target
- I3 call is crucial for GW community
  - Both for present R.I. and for future R.I. (ET)
  - GW community had a proactive action in order to have ASPERA items in the I3-H2020 call
- Design study is a possibility for atom ITF and under evaluation for specific items for ET
- MC ITN, RISE and COFUND will be surely explored
- FET Open and FET proactive are of great interest

Neutrini: Mezzetto

- Attività passate o ERC in corso:
  - Bene, EuroNu, Neu2012, Laguna, LagunaLBNO, CeLAND, SOX

- Idea nuova: usare **ESS per un long base line in Svezia**
  - Rivelatore ad acqua à la Menphis
  - In alternativa: Protvino su un rivelatore alla Orca (ovviamente su Antares....)

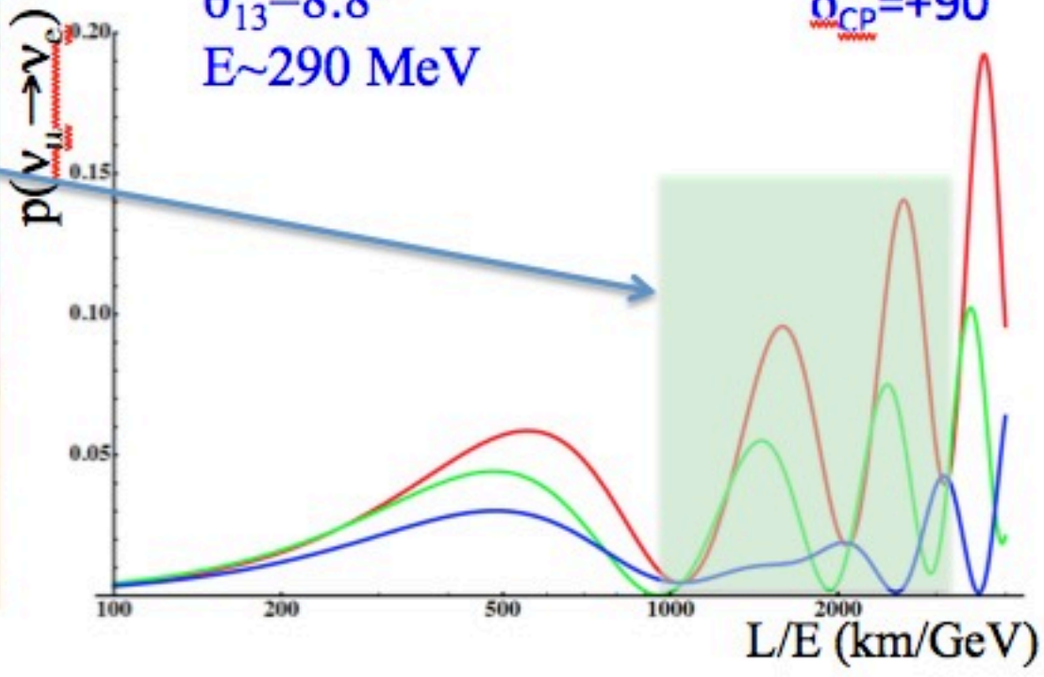
- Abbiamo fatto inserire **Borex-Xenon** come opzione futura

Possible Detector Locations

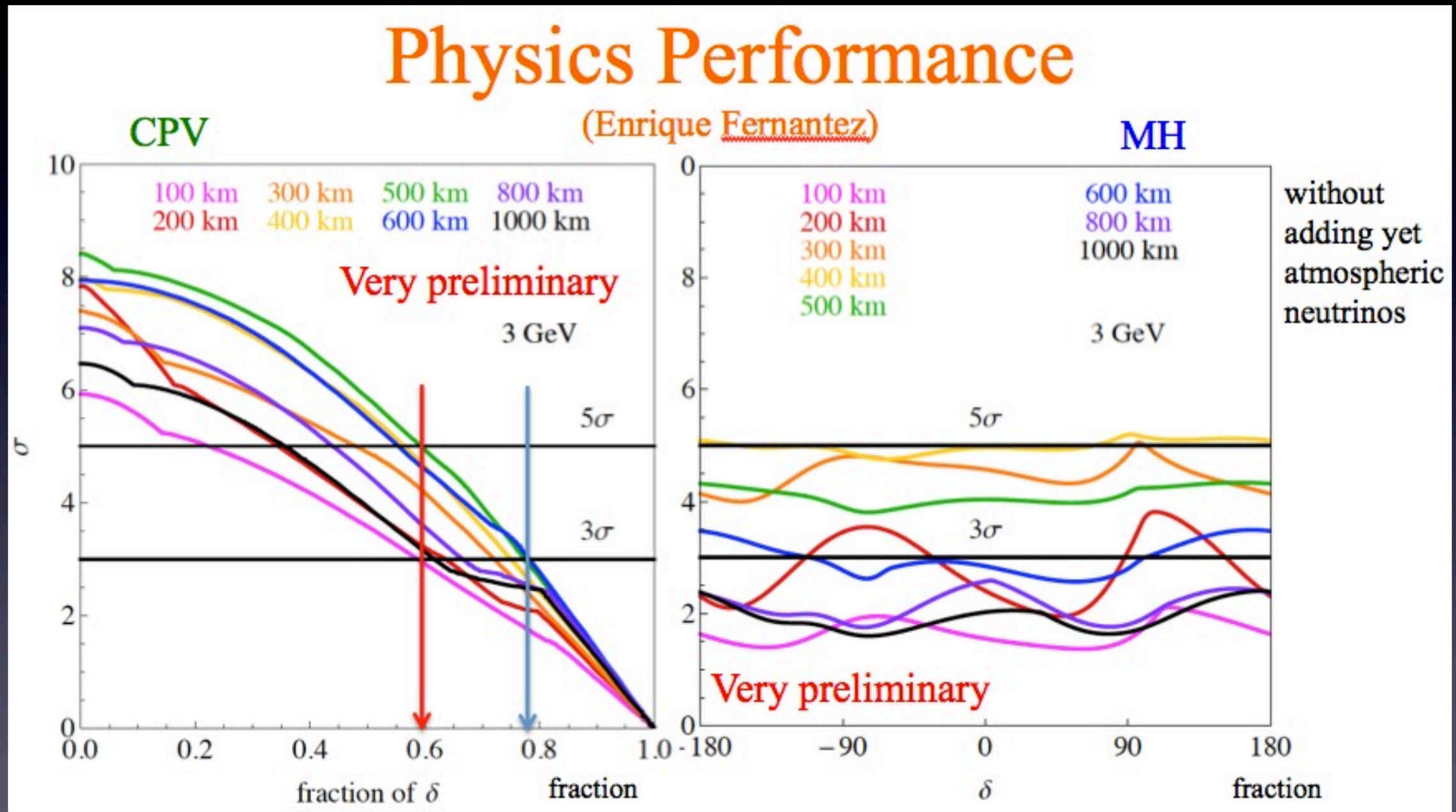
- Many mines (active or not) are available in Sweden
- What is the optimal position for CPV?
- How this project could help for MH?

$\Delta m^2_{sun} = 7.5 \times 10^{-5}$ eV^2
$\Delta m^2_{atm} = 2.4 \times 10^{-3}$ eV^2
$\theta_{23} = 41.4°$
$\theta_{12} = 33.6°$
$\theta_{13} = 8.8°$
E~290 MeV

$\delta_{CP} = -90$
$\delta_{CP} = 0$
$\delta_{CP} = +90$



Neutrini (II)


Physics Performance
(Enrique Fernantez)
CPV
MH
100 km
200 km
300 km
400 km
500 km
600 km
800 km
1000 km
Very preliminary
3 GeV
5σ
3σ
σ
fraction of δ
fraction
δ
without adding yet atmospheric neutrinos

Teoria: Masiero

CONCLUSIONS

- **Astroparticle community needs to be more "structured" to cope with the H2020 challenges → immediate step: formation of a committee of national representatives of the community**
- **Answering the Marie Curie, CoFund, ERC calls; coordination of the projects to present still in progress (help from the above step)**
- **Emphasis on training and formation actvity**
- **Towards a EU Center for Astroparticle Theory: first, a virtual centre (PACT with a steering committee identifiable, in part, with the above representative committee**
- **Possible integrated actions in the H2020 between theoretical and experimental astroparticle communities**

Commenti finali

- Un meeting di per sè interessante

- Horizon 2020 offre opportunità importanti, soprattutto ma non solo nel settore "Excellent Science"
  - Molti soldi su ERC e Marie Curie
  - Buone opportunità per ITN (dottorati)

- Commento personale: sull'effettiva utilità di APPEC ho qualche certezza in meno.....