



# Astroparticle Physics European Consortium

update

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<b>Dark Matter</b>	<b>Dark Energy</b>	<b>Neutrino Properties</b>	<b>Neutrino Mass</b>	<b>Cosmic rays</b>	<b>High-Energy Photons</b>	<b>Ultra-High Energy neutrinos</b>	<b>Gravitational waves</b>	<b>Theory</b>
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SAC Committee: L. Baudis (Dark Matter)

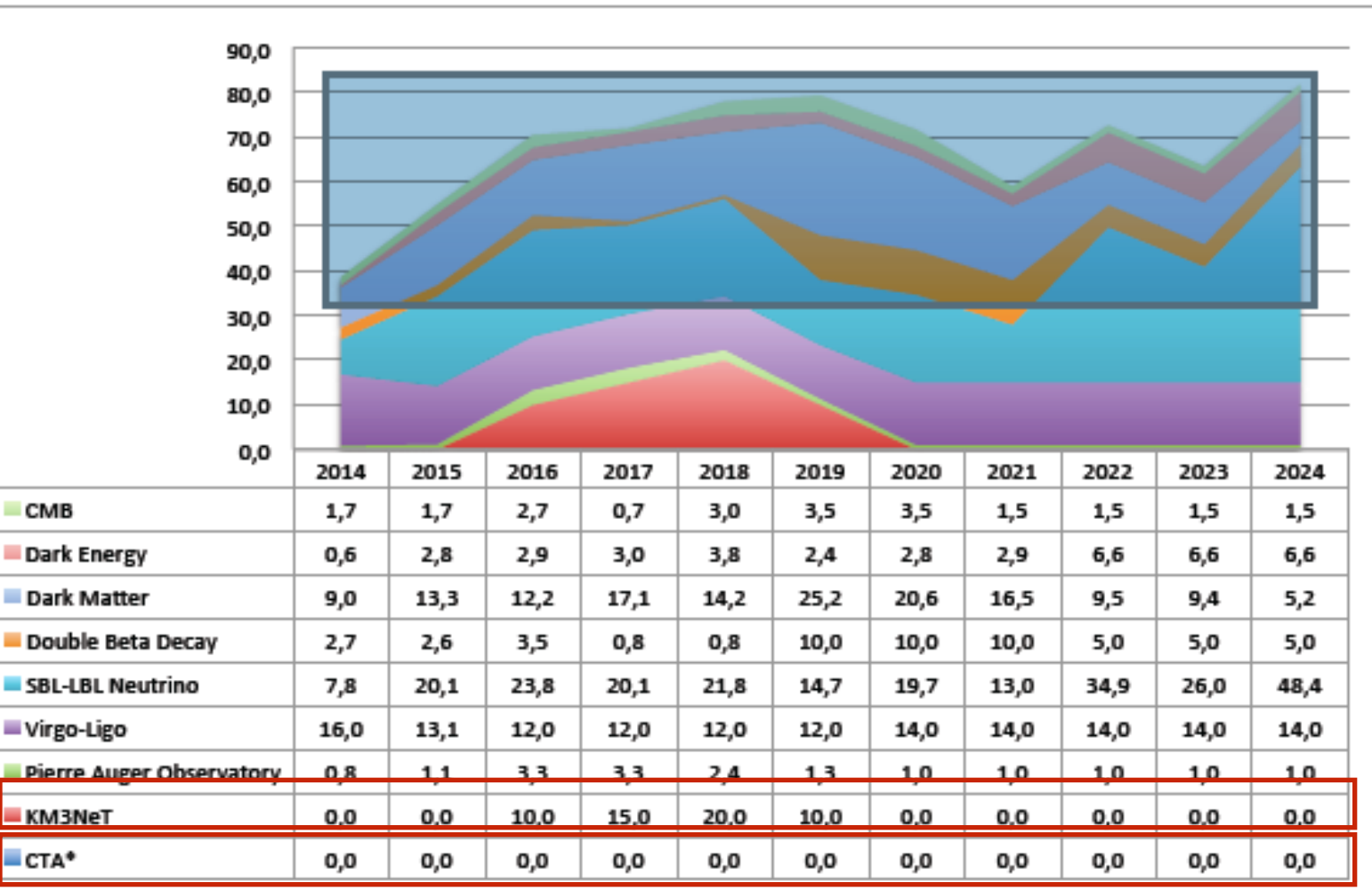
General Assembly with representatives of funding agencies (TM)

Joint Secretariat Meeting @ UniGE on 17 Jun  
GA Meeting on 18 Jun at CERN

# SAC report

Approach: understanding where **convergence on large RI is possible in order to make significant breakthroughs.**

They produced a table to verify if needs in the various domains of ApPEC are compatible with resources invested at the moment after contacting all members.



CTA: money will come from ministries anyway but in many countries these are not extra funds...

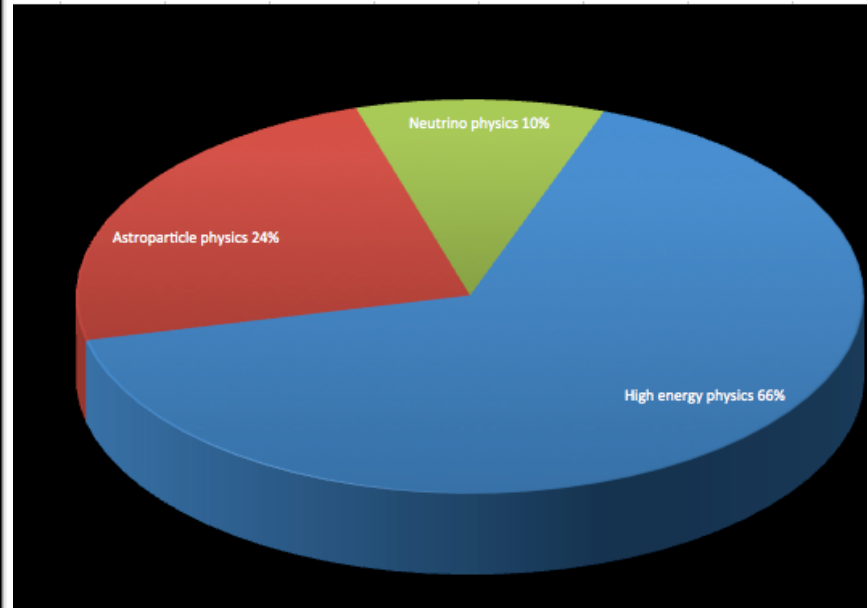
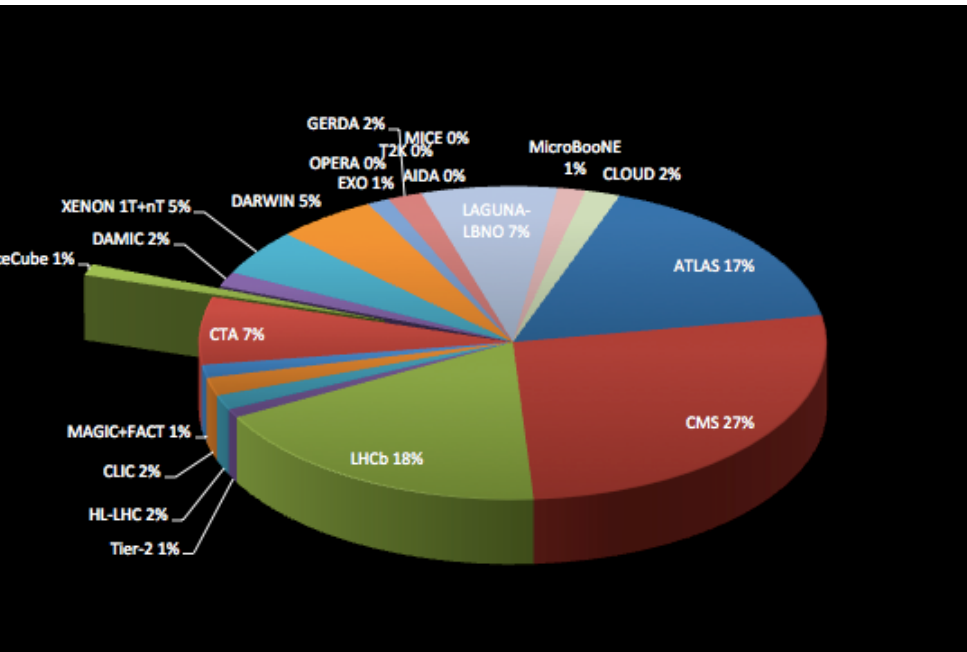
KM3NeT: 2 Phases: 1.5 (50-60 M in 2016-19) on investigation of IceCube signal is not the full program!

Phase 2 about factor of 10 better sensitivity +140 -170 ME in 2020+.

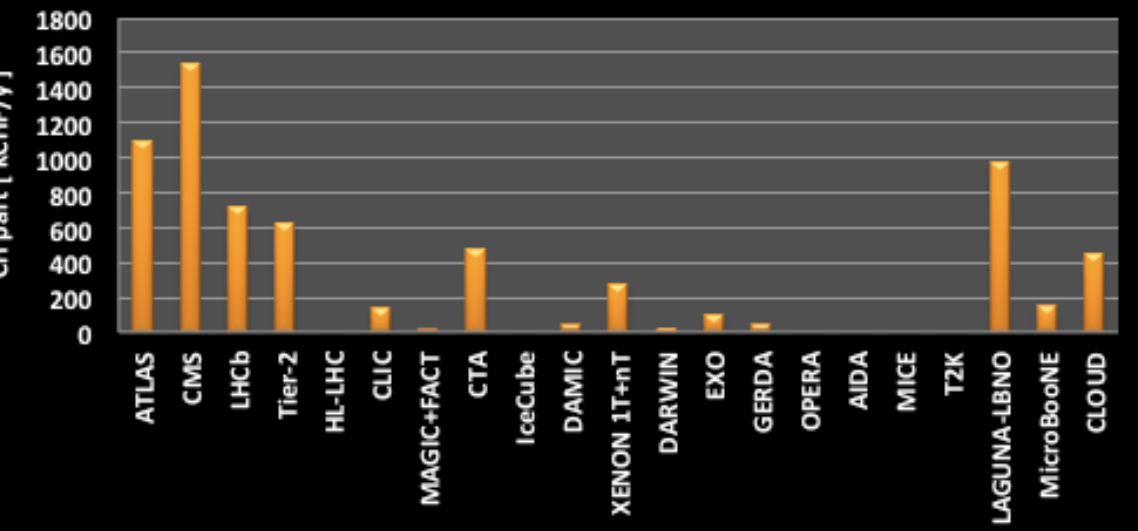
TOTAL	38,6	54,7	70,4	71,9	77,9	79,1	71,6	58,9	72,5	63,4	81,6	740,6
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# CH response

Switzerland sent data from CHIPP tables after EXCELLENT reformatting by Olivier



R&D and investment (no salaries) in 2013



	R&D and INV		Operation (no salaries)	
	2013	2014	2013	2014
MAGIC+FACT	8	0	55	55
CTA	470	659	85	165
IceCube	0	0	25	40
DAMIC	41	41	33	33
XENON 1T+nT	275	563	150	150
DARWIN	25	25	0	0
EXO	100	90	0	50
GERDA	45	23	4.5	4.5
OPERA	0	0	175	175
AIDA	0	0	0	0
MICE	0	0	0	0
T2K	0	0	328	328
LAGUNA-LBNO	973	973	100	100
MicroBooNE	150	100	0	45



# ESFRI

## RESEARCH & INNOVATION

### Infrastructures

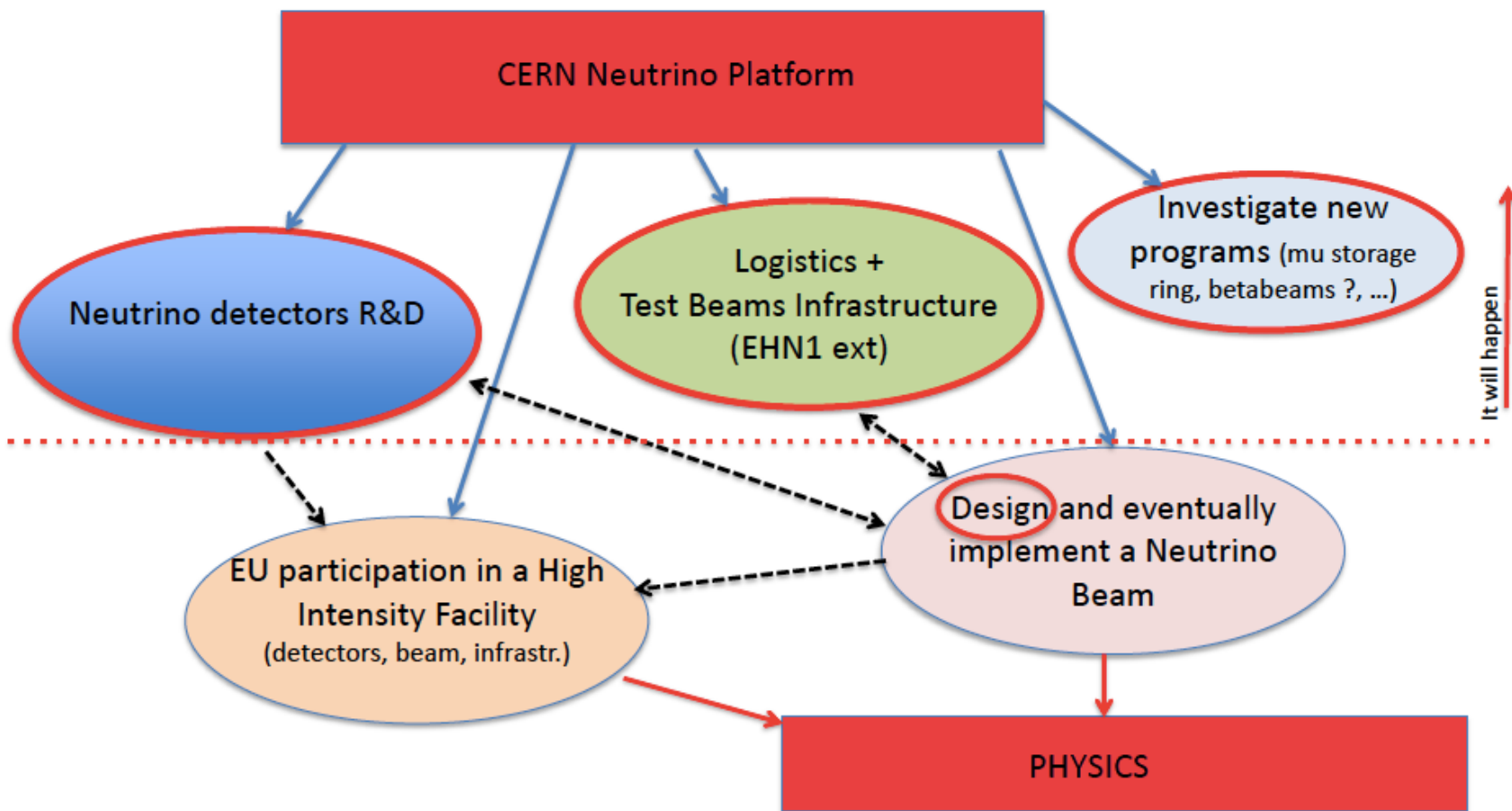
European Commission > Research & Innovation > Research infrastructures > ESFRI

- **Created by the ministers of member states**
- **5 WGs on Physical sciences and engineering, Environmental Sciences and Climate Change, Health & Food, Energy, Social and Cultural innovation**
- **does not have funds to distribute (99% of funds are expected to come from countries) but its ranking is useful to influence how funds are distributed**
- **The new Roadmap is expected for 2015/2016.** There will be **8-10 new projects** that can enter and total number will be reduced from 48 to 25
- **2 updates in 2008-2010.** Last one in Aug. 2013, in the domain of ApP 2 projects were ranked in **Cat 1 (SKA, means ready for implementation in 2015)** and **Cat 2 (CTA, can be ready for implementation in 2015)**. The assignment of Cat 3 (minimal chance to achieve maturity in 2015) was badly taken by the management of KM3NeT and is being revisited since this triggered much progress in the organization of the project.

# ESFRI

- **ESFRI does not require setting up an ERIC but just a legal entity to represent the RI. The advantage of the ERIC is only not to pay VAT.**
- H2020 INFRADEV applications: **INFRADEV-1** open to any new infrastructure design to be considered for the ESFRI Roadmap (Eg **DARWIN and ORCA/PINGU**); The list of projects that can apply to INFRADEV-3 for the implementation produced: 3 projects will be surely funded and 9 (between which CTA) may obtain funds but quite limited.
- **Call for new projects by ESFRI independent on INFRADEV-1 with deadline in March 2015.**

*Given the still vague/evolving road map on long baseline  $\nu$  activities in Europe, Japan and US*



WA104: rebuild ICARUS T600 in bldg 185 for FNAL beam, R&D on an AIR core muon detector (NESSiE) or integrate a solenoid in the main TPC

WA105: R&D on 2 phases LAr TPC prototypes (total cost 8MCHF)

LBNF : LBNE module in WA105 cryostat

MIND :R&D on muon tracking detectors (cost 3.6MCHF)

55MCHF

5 yrs

Paris, 23-24 June, 2014

# Global Neutrino Meeting

**Draft** of statement from Roundtable of agencies

...they welcome the **recent approval by the CERN council of the medium term CERN plan**

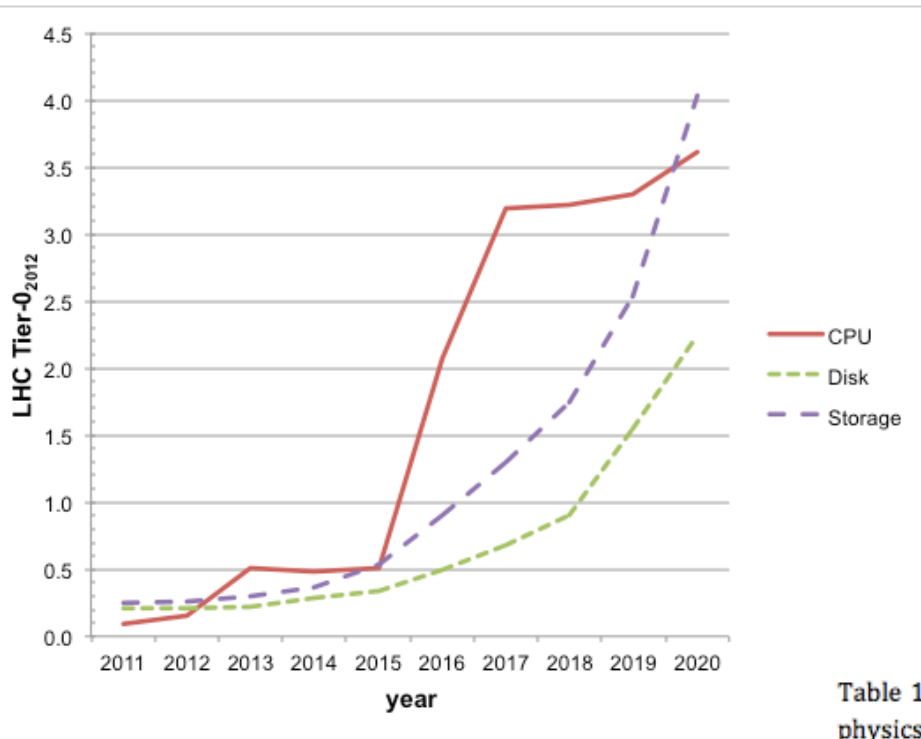
They also welcome the **proposed upgrade of the J-PARC beam and megaton scale water Cherenkov detector with large international participation in Kamioka (HK)...**

They **support the vision of the HEPAP(P5) committee proposing that Fermilab hosts an international facility for short and long-baseline neutrino oscillations, where internationally driven collaborations are encouraged to propose a program optimised in baseline and detector technology.**

The agencies **invite the neutrino scientists to develop urgently a **coherent international program consistent with the above opportunities**. The agencies will meet again in early 2015 at Fermilab, to evaluate the progress made with respect to this goal.**



# Whitepaper on computing



white paper draft circulated  
(Switzerland is not in table and not participating to EU-T0)

An “LHC Tier-0<sub>2012</sub> unit” thus denotes the capability of 65000 CPU cores in 2012 and short and long term storage of 30 PBytes.

From 2015 CPU usage is expected to grow up from 0.5 to more than 3 until 2020. In the same time the short term disk storage shall grow from currently 0,25 to 1,5 LHC Tier-0<sub>2012</sub> units until 2020. The corresponding growth on long term (tape) storage needs will be from 0,25 to roughly 5 units. **With the start of the next generation of experiments around 2015 there is an increasingly demand in computing power and storage space.** This requires a **strong coordination** between collaborations, leading data centers in Europe, and the funding agencies in the coming 2 years.

Table 1 provides an overview of the European data centers involved in managing astroparticle physics data. [describe the details of table 1 ...]

Computing Centre	Country	Astroparticle Data														Particle Physics Data		
		AUGER	HESS	MAGIC	CTA	ANTARES	KM3NeT	IceCube	FERMI	AMS	VIRGO	LIGO	PAU	SNLS	EUCLID	LSST	Other	LHC
FZU	Czech Republic	X																Tier 2
CCIN2P3	France	X	X		X	X	X		X		X							Tier 1
AEI	Germany										X	X						
DESY	Germany		X	X	X			Tier 1									X	Tier 2
KIT	Germany	X															X	Tier 1
CERN	International									X								Tier 0
INFN-CNAF	Italy			X			X		X		X						X	Tier 1
NIKHEF	Netherlands																	Tier 1
NDGF	Nordic																	Tier 1
CYFRONET	Poland				X												X	Tier 2
PIC	Spain			X	X								X				X	Tier 1
RAL	UK																X	Tier 1

Table 1: incomplete



## H2020 actions: COFUND

About 150 postdocs in theory and computation for theory connected to industry (e.g. GPUs)

Min salary 3600 E/month (2600 given by EU)

All in a common pot, fellows decide in what participating Institution to go.

Could be very interesting for Switzerland Institutions and SNSF.

S. Katsanevas (coordinator) will call for interests of legal entities.

Contact me if interested for more details.

## ASTERICS: CLUSTER of Astronomy and Astrophysics programs

Also CTA and SKA, Virtual Observatory...

# More information

## Joint Secretariat

- person appointed on outreach
- CF remaining 6kE, for next year 64 kE expected.  
CF bill will arrive in September ;(

Next GA meeting in Fall (yet unknown date) will host the election for Chair (now S. Katsanevas) and General Secretary (now T. Berghöfer)

Committee for nominations: SK, Iliana Brancus, N. Ferroni

reports of meetings in:

<http://www.chipp.ch/appec/index.html>

ID: ApPEC-GA, pwd: paf%72BM)

Official Reports (for the time there is no official web site) in

[http://www.chipp.ch/chipp\\_appec.html](http://www.chipp.ch/chipp_appec.html)

Official website of ApPEC: <http://appec.org/>