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**Astroparticle Physics European Consortium report**

**Committees: General Assembly (CH:T.Maillard & TM), Scientific Advisory Committee (SAC, CH: L. Baudis) and Joint Secretariat (JS).**

**TM reports at Round Table International Meetings of SCNAT (Chaired by Prof. Ott)**

Dark Matter  
Dark Energy  
Neutrino  
Properties  
Neutrino Mass  
Cosmic rays  
HighEnergy  
Photons  
Ultra-High Energy  
Neutrinos  
Gravitational  
waves  
Theory  
Technology  
Computing  
Training &  
Education  
Interdisciplinary

**NEWS**

**HAP DARK MATTER 2015: FROM ASTRONOMICAL OBSERVATIONS TO ASTROPARTICLE THEORY**

Joint workshop Astroparticle Theory and Dark Universe  
21-23 September 2015, Karlsruhe Institute of Technology, Germany  
This meeting follows the HAP DM 2013 meeting, addressing recent...

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**FEATURES**

**ASTROPARTICLE IN HORIZON 2020**  
Get prepared together! September 29/30, 2015 • Zagreb, Croatia

In September 2015 the Horizon 2020 work programs for the period 2017-2018 will be released by the European Commission. APPEC invites all interested astroparticle physicists, colleagues from neighboring scientific fields and companies interested in F&E cooperations to a community workshop. After the...

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astroparticle U.S. physicists push for new #neutrino experiment - IMT @sciencemagazine - <https://t.co/gyJ5rshbps> <https://t.co/mxWchGuxPI>  
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astroparticle Cosmic rays to be used to 'Scan Pyramids' <https://t.co/D0XLSwVt1> via @ahramonline <https://t.co/Hv18rd6e1a>  
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**RECENTLY IN THE NEWS**

- **LHC Experiments Are Back in Business at a New Record Energy**  
CERN Press Release, 3 June 2015
- **NASA Telescopes Set Limits on Space-time Quantum "Foam"**  
Chandra Press Release, 28 May 2015
- **Lawrence Livermore Scientists Move On**

**EVENTS & MEETINGS**

**International Cosmic Day 2015**  
DESY, Zeuthen - Thu Nov 05

**13TH INTERNATIONAL GRIDKA**

<http://www.appec.org/>

**CHIPP Plenary Meeting, Feb 2016**

# APPEC recent news

- Last General Assembly meeting on Jan 8 (chair: Franck Linde (Nikhef), Thomas Berghoefer (DESY) chair of Joint Secretariat); JS meeting next week
- L. Baudis: in SAC of Aspera and renewed in APPEC in Jan. 2013. F. Halzen as non-CH member. Some of the members will be replaced. CHIPP EB decided to nominate for SAC: Misha Shaposhnikov.
- Resource-aware Roadmap process launched in 2014. SAC produced a draft of Roadmap. Important venue for community input: Paris Town Meeting, 2<sup>nd</sup> Int. Meeting on Large Neutrino Infrastructures, Fermilab, 20-21 Apr. 2015
- Many meetings organized: Technology forum: 22-23 Apr. 2015, Munich (<https://indico.desy.de/conferenceDisplay.py?confId=11275> );  
**Technology vision meeting in Spring 2016**; Zagreb workshop on H2020: a web site with all coming calls and a multi-messenger ITN was formed and other proposals in prep. (GWs, KM3NeT)

General Assembly Meeting Minutes and my notes in [http://www.chipp.ch/chipp\\_appec.html](http://www.chipp.ch/chipp_appec.html)

[chipp.ch](http://www.chipp.ch) -> Meetings & Documentation -> section: Documents of related organisations -> paragraph on ApPEC: click on 'Minutes'.

user ID: ApPEC-GA

# Other future meetings

- 3rd Global Neutrino Meeting 30-31 May 2016 in Tsukuba
- Follow up of Cosmology workshop in Florence, Sep 2015 will be on 8-9 Sep. 2016

# Strategy towards new Roadmap (2016-2020)

- The Roadmap is not a binding doc for FA but sets actions to facilitate convergence.
- The Roadmap will include an Executive Summary and a **Strategy Statement** including **recommendations** that will be produced only after hearing the community at the town meeting (bottom-up approach).
- Aim to present it in **Sep 2016**
- Roadmap document will have 7 chapters:
  1. Introduction (SAC)
  2. Core Chapter (SAC)
  3. Theory, Computing and Detectors R&D (SAC)
  4. EU Astroparticle Community (APPEC-GA)
  5. Global Aspects (APPEC-GA + SAC))
  6. Society Impact (APPEC-GA)
  7. Inter-disciplinary Aspects (APPEC-GA)

# Paris APPEC Town Meeting

- 6-7 April 2016; website: <http://app2016.in2p3.fr/>.
- A large (and active) participation of our European ApP community will determine the success of this Town Meeting as well as the Roadmap.
- The GA is preparing considerations to stimulate the discussion

## Wednesday 6 April

09:00-10:00	Registration - Welcome coffee	Proposed speaker	Proposed moderator
10:00-10:15	Opening & Introduction	A. Masiero	A. Masiero
10:15-10:45	Multimessenger study of the Universe - Theory	F. Halzen	A. Masiero
10:45-11:30	HE-Universe - Gamma	C. Spiering	C. Stegmann
11:30-12:15	HE-Universe - Neutrino	G. Anton	S. Bentsen
12:15-13:00	HE-Universe - Cosmic rays	A. Haungs	J. Blümer
13:00-14:30	Lunch - Buffet		
14:30-15:15	HE-Universe - Gravitational waves	P. Sutton	F. Ferrai
15:15-15:45	Current problems in neutrino - Theory	E. Lisi	J. Seed
15:45-16:30	Neutrino parameters with large experiments (CP violation, mass hierarchy...)	M. Mezzetto	F. Ferrai
16:30-17:15	Coffee		
17:15-18:00	Neutrino mass	A. Giuliani	S. Bagazzi
18:00-18:30	Break		
18:30-19:15	T. Kajita lecture (TBC, public)	T. Kajita	S. Katsanevas
19:15-20:15	Cocktail		

Evening GA meeting

## Thursday 7 April

09:00-09:30	Current problems in cosmology - Theory	R. Durrer	L. Bergström
09:30-10:15	Cosmology - CMB	P. Binétruy	S. Katsanevas
10:15-11:00	Cosmology - Dark Energy	R. Miquel	R. Pain
11:00-11:45	Coffee		
11:45-12:30	Cosmology - Dark Matter	J. Monroe	M. Martin
12:30-13:00	APP Computing	M. Delfino	T. Berghö
13:00-14:30	Lunch - Buffet		
14:30-15:00	APP - Detector R&D, Industry	J. v'd Brand	T. Montar
15:00-17:00	Round table with international agencies (CERN, ASTRONET, ESO, DOE, NSF, CANADA, CHINA, JAPAN, INDIA)	S. Katsanevas (Chair)	S. Katsanevas
17:00-17:45	Coffee		
17:45-18:15	Conclusions, APPEC, community, roadmap, funding alignment, international coordination	F. Linde	F. Linde
18:15-19:15	Coffee & Goodbye		

# APPEC Census 2015 (sent on Feb 20)

	Realized exploitation expenses (2010-2014) agency proper funding average €/year	Realized exploitation expenses (2010-2014) other funding average €/year	Anticipated capital investments (2016-2025) agency proper funding average €/year	Anticipated capital investments (2016-2025) other funding average €/year
Multi-messenger	220000	995000	1080000	2000
Neutrinos	788000	320000	892000	40000
DM	150000	220000	1100000	125000
	Realized exploitation expenses (2010-2014) agency proper funding average €/year	Realized exploitation expenses (2010-2014) other funding average €/year	Anticipated exploitation expenses (2016-2025) agency proper funding average €/year	Anticipated exploitation expenses (2016-2025) other funding average €/year
Multi-messenger	160800	433000	391000	33000
Neutrinos	409000	0	449500	0
DM	15000	15000	35000	10000
	Realized travel costs (2010-2014) agency proper funding average €/year	Realized travel costs (2010-2014) other funding average €/year	Anticipated travel costs (2016-2025) agency proper funding average €/year	Anticipated travel costs (2016-2025) other funding average €/year
Multi-messenger	52000	78000	97000	28000
Neutrinos	192000	15000	162000	5000
DM	22000	20000	35000	10000

# News on Swiss Roadmap on RI

## Cherenkov Telescope Array

Lancé en 2010 par un consortium international, le projet Cherenkov Telescope Array (CTA) ouvre un nouveau champ, celui de l'astronomie gamma au sol. Il permettra d'observer les éclairs Cherenkov dans l'atmosphère terrestre et de tirer des conclusions sur les sources de rayons gamma telles que les galaxies et les supernovas.

Des moyens sont demandés afin que la Suisse puisse participer à l'organisation CTA en tant que membre fondateur, et qu'elle puisse ainsi bénéficier des avantages qui en découlent. La construction est prévue entre 2017 et 2020. Les coûts de construction sont estimés à 300 millions d'euros. Proportionnellement à son potentiel d'utilisation, la Suisse devrait contribuer à hauteur de 2,5 %, ce qui correspond à environ 8 millions de francs.

La répartition de la contribution proposée dans le tableau ci-dessous tient compte des tous les faits connus actuellement.

La participation formelle de la Suisse au CTA est décidée dans le cadre d'un accord international. Selon la LERI, le Conseil fédéral est compétent pour ratifier un tel accord pour autant que les fonds soient approuvés par le Parlement.

A partir de 2021, les contributions devront être soumises dans le cadre des messages annuels sur le budget.

## Finances

Fig. 24

Chiffres arrondis (en millions de CHF)	2016	2017	2018	2019	2020	2017 à 2020
ILL	3,6	3,5	3,2	3,2	3,0	12,9
CTA		1,0	1,5	2,5	3,0	8,0
Total	3,6	4,5	4,7	5,7	6,0	20,9

Voir projet 10 (arrêté fédéral) : art. 1, al. 1, et 2, al. 1.

## Art. 2 Cherenkov Telescope Array (CTA)

<sup>1</sup> Un crédit d'engagement de 8 millions de francs est ouvert pendant les années 2017 à 2020 pour la participation de la Suisse à la construction du Cherenkov Telescope Array (CTA).

<sup>2</sup> Les engagements financiers peuvent être contractés jusqu'au 31 décembre 2020.

The Federal Council on Feb. 24, 2016 passed the message on the **encouragement to education, research and innovation (FRI)** for the years **2017-2020**. It solicits an envelope of about **26GCHF** for various measures of encouragement. It proposes to update several laws in the domain of FRI. The Parliament still has to approve this funding proposal. Would it do so, this would create the basis of a valuable participation of Switzerland in CTA from the very beginning of the construction phase.

## 2.10.2 Instruments de coopération en matière de recherche et d'innovation

<http://www.sbf.admin.ch/org/02839/index.html?lang=fr>



breakthrough innovation programme for a pan-European detection and imaging ecosystem detection

- ATTRACT (<http://www.attract-eu.org>)
- A proposal for a pan-EU initiative to accelerate developments of high-performance detector and imaging technologies, involving European Research Infrastructures (ERIs), EU Research Institutes and small and medium enterprises (SMEs) mainly.
- The target is to develop the next generation of scientific instruments (order of 100 proposals funded order of 100'000 Euro at first stage and 10 selected for second stage) with the aim to make ATTRACT self-sustainable.
- Proposed research programs have to be as open access as possible.
- Phase 1: 12 M for open calls and Phase 2 (2017-20): 40M for continuation of selected projects in Phase 1 through open calls
- APPEC sent proposal for ATTRACT advisory/high level board.



# H2020 activities by ApPEC

- ApPEC has been very proactive in organizing and promoting H2020 activities.
- **GENERA Gender Equality Network in the European Research Area: 3.3M granted, UniGE and SNF (observer)**
- **Astronomy ESFRI and Research Infrastructure Cluster - ASTERICS (INFRADEV-4-2015): SKA, CTA (32%), KM3NeT & E-ELT. 15MEuro granted. Switzerland not included (submission before Sep. 15., 2015). Need of an important initiative at country level for ASTRO BIG DATA (CTA & SKA)!**
- **INFRADEV-3-2015: CTA for site preparation, granted 4.3MEuro.**
- **INFRADEV-1-2014 For ApP DARWIN and underground lab network not granted.**
- **EUropean THEoretical particle Astrophysics and Cosmology fellows Association - EUTHACA Marie Curie Action - COFUND: coordinator S. Katsanevas, withdrawn with only 'burocrats' reasons (Binétruy as coordinator). 27 partners including UniGE.**

- UniMes (MSCA-ITN-2015-ETN) **withdrawn with 91.4, resubmission being prepared.** UniMes aims to structure the research and education in this interdisciplinary field at the European level and will train the new generation of young scientists to optimally exploit the current and future generation of observatories and large infrastructures. Coordinator. G. Sigl, Hamburg, 14 institutions including UniGE DPNC and ISDC and 3.8M.
- LSD Roadmap - A roadmap for the ultimate low Light-level Sensor Development Future and Emerging Technologies, FET Exchange, withdrawn with high rank to DESY, resubmitted (DESY-UNIGE)
- FET-OPEN 2015 (success rate < 2%!!): **D-LIGHT** new hybrid photosensor of Philips, UniGE, KIT, CEA/in2p3, IdeaSquare (CERN) submitted.
- MC RISE proposal (L. Baudis) continuation of invisibles+ (for travels) + ELUSIVE ITN (withdrawn with 94.4 score) had very high scores (postdocs and PhDs).