5th APPEC General Assembly
January 9th, 2015
APC, Paris, France
Minutes

Present: Teresa Montaruli, Victor Matveev, Luke Drury, Hans-Jürgen Donath, Stan Bentvelsen, Janet Seed, Johannes Blümer, Thomas Berghöfer (General Secretary - GS), Philippe Chomaz, Antonio Masiero (SAC Chairman), Stavros Katsanevas (Chairman), Lars Bergstrom, Job de Kleuver, Frank Linde, Ino Agrafioti (Secretariat).
Observer: Claus Madsen (ESO)
Invited: Michel Spiro (APPIC), Halina Abramowitz (ECFA)
Guests: Sandra Hesping, Eleni Chatzichristou, Anne-Isabelle Etienvre, Sylvie Leray

1. Adoption of the Agenda

The agenda was adopted.

2. Approval of minutes of the fourth GA

The minutes of the fourth GA were approved.

3. Accession of new partners – report from the General Secretary

The GS presented the latest updates on the accession of new partners.

- Austria – FWF is convinced that joining APPEC will be a positive development, but they want the feedback of their scientific community.
- Czech Republic – Jan Ridky, who is APPEC's contact in this country, said that the APP labs are forming an association/legal entity that will eventually apply for membership to APPEC.
- Portugal – Since FCT is not allowed to transfer funding to foreign organisations and in-kind contribution is possible, observer status was offered. FCT will be reminded of this offer.
- Finland – The Academy of Sciences of Finland has been contacted by the scientific community and in the meeting of the 8th of January 2015 decided that the Academy is interested in becoming a member. The GS will contact them to inform them of the joining procedure.
- The GS has started discussions with scientists in Armenia, Bulgaria, Slovenia and Estonia, but it was considered too early to report on the details.

Furthermore, the GS proposed that the relation of APPEC with ECFA needs to be formalized with ECFA having an Observer status. APPEC is already an observer in the ECFA meetings. It was agreed to establish an Observer status for ECFA by an exchange of letters between the APPEC GS and the ECFA chairperson.
Two requests for withdrawal were submitted to the GS at the end of 2014.

- First, HRZZ (Croatia), which was an active participant in ASPERA-2, sent a letter stating that due to severe budget cuts and personnel reductions they do not feel they can contribute to APPEC. They have scientists working in the field, especially in gamma-ray astronomy.
  - It was suggested that they could become an Observer for a limited number of years. A change (from member to observer, i.e. no voting rights or membership fee) is not permitted in the MoU. It was decided that the MoU should not be changed.
  - According to the MoU Article 8.4 "A Participating Institution may withdraw from APPEC at the end of the financial year immediately following that in which it gives written notice of withdrawal." Officially HRZZ will remain a member of APPEC until the end of 2015, which means it will have to pay the fee for 2015.
- The second request for withdrawal came from a country with a very large scientific community, Poland. NCN stated that the agency withdraws from APPEC due to the shortage of staff and the fact that their priority is to fund research projects selected on the basis of competition.
  - The Polish scientific community, i.e. Michal Ostrowski and colleagues, are preparing a letter to the

Polish science minister requesting to continue the APPEC participation. They have asked for support from APPEC. It was decided that APPEC will get in contact with them, in order to find out what is the best way to contribute to their efforts (another organization could represent Poland in APPEC?) and eventually a meeting between representatives of the Polish science ministry, the community, NCN and APPEC is suggested to be organised to clarify the situation.

4. Report of the chair

The Chairman reported on the actions taken in the last six months.
First, in terms of European Coordination, the chairman reported that the SAC is very actively preparing the next roadmap. In addition, APPEC has made great efforts to help the community with the Horizon2020 proposals as can be seen in the management report. The Chairman mentioned again the discussions that have taken place with EC Deputy Head of Unit (P. Froissard) for the possibility of a Call in the Work Programme 2016/2017 for a global ERANET. At the moment the next round of calls is being prepared, so if APPEC would like such a Call it should give its input to the EC. Furthermore, the Chairman participated in the latest ECFA and ASTRONET meetings: he strongly recommends to the next Chair to keep the contacts with both of these bodies.
Second, in relation to global coordination, the first Global Neutrino meeting was a great success that changed the landscape of long-baseline experiments significantly. The second meeting is being prepared for April 2015 to take place at Fermilab. In addition, the Latin American countries are considering to create a Latin American of version APPEC: the Chairman was invited to their most recent meeting, where he presented how APPEC works.
Finally, the Chairman has been promoting better interdisciplinary coordination, e.g. with the geosciences. A meeting will be organized in September 2015 in Paris (see below).

5. Report on latest APIF meeting (Antonio Masiero)

The latest APIF meeting took place near one of the two LIGO sites, in the US, since the focus was global gravitational wave distributed research infrastructure. LIGO, VIRGO are in advanced stages and they have made great efforts in terms of global coordination, such as in the domain of data format and sharing.
It was emphasized that whereas APP is gaining momentum and getting more and more interest, nowadays it is not as easy as it used to be to get the engagement from countries for large or very large research infrastructures (>100M euros). It was also emphasized that particle physics needs the complementary input of APP, so the implementation of these infrastructures is important.
The sustainability of the APIF working group was also discussed. APIF is currently reporting to GSF/OECD, but this relationship will end at the end of 2016 and it is necessary to move towards a more sustainable form. The Chairman mentioned that for such fora to survive they need to have some support in personnel, which temporarily at least could be provided by H2020. Before such a step is made, however, APIF needs to define what could be a sustainable structure, so an idea to form an ASPERA-like workplan would be ideal to prepare such a structure. If the EU is to produce a Call to fund such a workplan, APPEC needs to prepare it in the next 18 months.
Finally, data access was greatly discussed. In fact, Maurice Bourquin is reviewing the APP publications to find out what would be the implications for the community to move to a SCOAP-like model for Open Access.
The next APIF meetings will be probably be in China (June) and at LNGS (late 2015). We might want to schedule our last APPEC/GA in 2015 such that we can exchange ideas with APIF. For the next APIF meeting Jim Whitmore (NSF) will compile an overview of astroparticle related technologies which have found commercial applications, an issue also of interest for APPEC.

6. Report by the chair of APPIC (Michel Spiro)

The Chairman of APPIC, Michel Spiro, first presented the history behind this committee. In October 2010, GSF recommended not only the creation of APIF, but also the formation of committee of the scientific community that could interact with APIF (funding agencies): “the International Union of Pure and Applied Physics (IUPAP) could review and, if appropriate, adjust its mechanisms for promoting international scientific co-operation and discussions among scientists about the future of the field”. In 2013, APIF and IUPAP defined the terms of reference for APPIC, which include reviewing on a regular basis the scientific status of the field, engaging in a continuous dialogue with APIF, including provision of scientific advice to APIF, and commenting on and liaising with similar national and international organisations on the assessment and road-mapping activities as these need may arise, e.g. for promoting the global coherence of plans, priorities and projects in APP.

In the beginning of 2014, APPIC was formed with 16 members (IUPAP WG10). Their first meeting took place in Paris, in May 2014 where the agenda was limited and focused on two topics.

1) Data policy in APP (data sharing, data access), starting with gravitational antennas. General conclusions of this discussion were: a) ground gravitational antennas have taken a bottom-up approach, i.e. science-driven data policy, b) LISA has adopted a space agency-type data policy (open data policy), c) the following were also considered: avoid false discoveries, give proper credit by quoting properly the used-data release (collaboration), resources have to be planned from the very beginning with funding agencies. APPIC will organize a session on this topic in TAUP2015 in order to discuss with the community on guiding rules for data policy in APP. The conclusions of this session will be fed back to APIF.
2) High energy and ultra-high energy multi-messenger astronomy (neutrinos, gamma rays, cosmic rays, gravitational waves). Michel Spiro described the existing and future experiments in all these fields. Many recent achievements, open questions and huge discovery potential make multi-messenger approach crucial, including gravitational waves and conventional astronomy (open data policy, virtual observatories including these new messengers will help). It was suggested to trigger a discussion on this subject in TAUP2015, looking at global coherence and priorities.

The next APPIC meeting will take on the 19th of April 2015, at Fermilab, just before the 2nd Global Neutrino Infrastructures meeting in Fermilab. This will be a joint meeting of APPIC and the ICFA-Neutrino Subpanel. APPIC will focus on APP capabilities and opportunities of the discussed proposals, beyond measuring neutrino properties. Then, the group will meet at TAUP2015 since it will be organizing these two sessions.

The members of the GA encouraged the APPIC efforts. The data aspects were discussed in detail. It was mentioned that even the private sector is opening its data to get zero-cost solutions from the outside, so APP should gear in that direction too, predicted to give great advantages. Some discoveries were made in the past, not by the collaboration itself, but rather by those that got access to the data. It was considered that the APP community is now ready to act – i.e. that bottom-up and top-down interest is finally matching in that direction.

7. Report from the SAC Chairman (Antonio Masiero), discussion on the roadmap

Antonio Masiero, the SAC Chairman clarified that the draft sent to the GA was NOT the draft of the roadmap, but rather the draft of the report to the GA and a summary of the future roadmap. The roadmap remains to be formulated (efforts are made to produce a new roadmap before summer).

The timescale of the last roadmap is approaching the end, but what are the arguments for creating a new roadmap now? There is an interesting and challenging landscape forming in the next 2-3 years: a) the next LHC run at 14 TeV will give information on the existence (or not) of new physics (new particles/interactions) at the TeV scale; b) PLANCK will release at the end of the month their analyses on CMB and measurement of CMB polarization, which will give information on the cosmological parameters (e.g. neutrino species, neutrino masses) and inflation (energy scale, inflation potential); c) the next generation (1-ton) DM experiments to probe WIMP (with masses of tens of GeV) – nucleon cross-sections in the 10^{-10} pb^{-1} range (covering important areas of the parameter space of TeV extensions of the standard model with WIMPS in the 10-100 GeV range); d) the first results of the neutrinoless double beta decay experiments will approach the neutrino inverse-mass hierarchy region; and e) the advanced LIGO and VIRGO will enter the period of sensitivity of their discovery.

The magnificent seven have become “magnificent nine” areas, divided in three groups: A) Multi-messenger astronomy, B) neutrino properties and C) dark side of the universe and CMB. The SAC chairman presented what were SAC’s recommendations in each of these categories. Overall it was considered by the SAC that in the next three years the APPEC agencies will need to take a decision on a) the construction of the phase 1.5 of KM3Net, b) a major investment as a contribution to a neutrino long baseline program in US or Japan, c) a European-led multi-ton dark matter experiment d) a ton-scale neutrino mass detector (double beta decay technique) e) a major contribution on ground and/or space to the cosmology programme probing the parameters of inflation. The SAC recommends that APPEC prepares these decisions, in coordination with its global partners, as well as with nearby fields, e.g. particle physics national and international laboratories (CERN, FNAL, KEK and JPARC). It was noted that three crucial ingredients for the success of the recipe are 1) intense theoretical activity with large integration of it with the experimental activities (PACT…), 2) innovative R&D and 3) modern computing.

The SAC had prepared a table with the predicted costs of each of the magnificent nine. A question was raised, as the new APPEC is more than coordination, on whether making the numbers in that table more robust – distinguishing/including running, construction and contingency costs – could be a first step for a top-down strategy, which aims at ensuring the funding of these experiments. Making a realistic cost table is important to ensure that operation and contingency costs do not trash all investments in future new projects. It was considered that such a table will be realistic only if the costs come from the funding agencies themselves since they have a more accurate idea of what these costs are.

The SAC chairman requested a clear mandate from the GA for the SAC.

DECISION: The GA considered that the recommendations should be clarified, especially when duplication of experiments is present (e.g. ORCA/PINGU). The scientific landscape should be "sharpened". A distinction was made between what is prepared for input in the public roadmap document and what is prepared for internal use, i.e. only for the eyes of the APPEC GA to help with their prioritization process. This precise evaluation of the costs in order to define priorities, which is a second step that follows the work of the SAC, has to be done from a small committee, named by the GA with members at the agency level.

8. Astroparticle landscape in ESFRI

ESFRI is preparing the new roadmap for 2016 and the PE Working Group was given a task by ESFRI to carry out a landscape analysis, a summary of which will eventually be a part of the 2016 ESFRI roadmap (4 pages in total). The PE Working Group then proceeded to form subgroups each of which will produce a half a page document to be included in these four pages. One of these subgroups is the Astronomy-Astroparticle group: the document sent to the GA was an extended version of the landscape prepared by this subgroup. It is *not a* public document (but might be circulated as a public document later on). To produce this, the Astronomy-Astroparticle subgroup received input from ASTRONET and APPEC: three members of the GA are members of this sub-working group (HJ Donath, A Masiero and S. Katsanevas). A few corrections were given by Frank Linde. Janet Seed remarked that most of the APP is in the future section – where decisions need to be taken – without first having discussed what has happened in the field so far. As a result, there is an imbalance in the document, implying that APP is just starting.

ACTION: HJ Donath promised to contact the head of the Astronomy-Astroparticle group Rafael Abela to ask for a face to face meeting of the group to straighten out the remaining imbalances of the document. In view of this meeting the GA members were invited to send their comments to Stavros Katsanevas for any part of the document that they do not agree with, by the 16th of January 2015.

9. Follow-up on neutrino and global policy

The Chairman presented the agenda for the Global Neutrino Meeting for discussion, emphasizing that this is a preliminary agenda and all GA members are encouraged to give their opinion. Janet Seed remarked that there should be at least one presentation on the progress of organisational aspects. The chair also mentioned that the director of FERMILAB emphasized that the press release of the previous meeting was a very important input in the agency-ministry discussions in the US, and that the next meeting should come out with an output of similar impact. Well before the actual meeting people should agree upon the goals to be achieved and how to publicize them. A possibility, that Nigel Lockyer found interesting, isa common R&D project along the principles of the "virtual pot", as practiced by ASPERA in the past.

ACTION: A phoneconference of the GA before the meeting will elaborate on possible outcomes of the meeting.

10. Outreach actions current and future

Eleni Chatzichristou presented the actions taken in terms of communication and outreach over the last five months, which included >20 Featured + News Focus stories, 95 News items, >50 positions advertised in the jobs section, constantly Updated Calendar with Events & Meetings, 3 newsletters (September, November, January), and contact with other science communication networks (InterAction collaboration, EPPCN, IPPOG). One of the big tasks of the officer was to prepare for re-design and re-structuring of the APPEC website, in parallel to the updates on the current APPEC website. A complete proposal was provided and discussed

during the November JS meeting for a new improved architecture and design of the APPEC website based on the more user-friendly Wordpress. Installation of the test site is currently in progress: first release of new site (end of January 2015), improvement and final release of new site (1st quarter of 2015), gradually include new items/sections (e.g. science & art, gender in science, monthly interview with a scientist, information on calls and funding opportunities, resources for the researchers, blend in ASPERA and astroparticle.org resources).
Furthermore, the APPEC outreach network was defined and a first face to face is planned for February in Karlsruhe. The network's aims are to: a) establish a flow of updated information regarding science news / events / conferences from within the outreach network, b) coordinate communication around new discoveries, c) update and develop common outreach material.
A proposal for outreach strategy for 2015 was presented:

- Build on existing media distribution channels to highlight APPEC activities and its contribution to APP
- Publicise newsworthy results from APPEC-related research activities, and scientific results.
- Develop web interfaces, incorporating social media and graphic tools to engage audiences (community, funding agencies, ministries and politicians, RIs, industry, media, educators) with real time insights into APP science. The GA asked for clarification on what is the audience targeted by the outreach strategy.
- Coordinate and combine various outreach activities and resources within member institutes, capitalizing on opportunities offered by high profile APP events.

A number of GA members were interested in attracting more interactions with schools, especially given that many of the APP infrastructures are regularly visited by schools. Citizen science is something that is also happening already, but should be expanded.
A detailed proposed outreach strategy will be furtherdiscussed by the JS and will presented in the next GA meeting.

11. Management report 2014 – General Secretary

The GS presented the state of the common fund.

- Balance end of financial year 2013: € 34.519,29
- 2014 partner contributions: € 64.000,00
- Expenses in 2014: € 46.847,18
  - Meetings costs 2014 (status of Jan. 05, 2015): € 29.121,41
  - Invoices communication officer incl. travel € 17.725,77
- Balance end of financial year 2014: €49.211,42 (preliminary)

He clarified that there are no problems with the payments, even if it involves a lot of bureaucracy.

Since the last GA meeting the following meetings took place:

APPEC global neutrino meeting	23-24 June 2014	Paris
APPEC outreach meeting	24-25 July 2014	Hamburg
LNGS Summer Institute	Sept-22-Oct 3 2014	Gran Sasso
Light 2014	6-10 Oct 2014	Ringberg Castle
SAC meeting	3-4 Nov 2014	Paris
JS meeting	5 Nov 2014	Paris

The GS then reported a difficulty with the reimbursement of the outreach officer. Since Eleni Chatzichristou does not belong to any of the agencies of the consortium, a temporary solution has been found since July 24, and she has been paid on a presentation of invoices by DESY, for administrative reasons this solution cannot continue beyond the end of January 2015. S. Katsanevas announced that a solution was very probably been found through the possibility of a contractual relationship with the Paris Center of Cosmology , affiliated to APC.

The Horizon2020 activities were discussed – the proposals submitted to Horizon2020 were listed and it was emphasized how many of these ideas came during the workshops organized by APPEC to motivate the community.

12. Election of new chair and general secretary (closed session)

Frank Linde was elected as the new Chairman of APPEC and Thomas Berghöfer was re-elected as General Secretary. FL thanked Stavros Katsanevas for the huge dedication and near infinite energy he invested in the launch of APPEC. He added that he is hoping that Stavros will be able to continue to feed his enthusiasm in APPEC. He is excited about this new role, which he takes at a time that so many new exciting discoveries are expected in the field. He considered that the big challenge will be to ensure the construction of the large infrastructures (>100M€ capital investment): APPEC's efforts need to be stepped up in order to look into the technical and scientific aspects of the new programme. International cooperation will be very important given that most of the APP endeavours are global. The schedule needed by the infrastructures should be secured.

13. 2015 workplan – General Secretary

The GS presented the ideas prepared for the 2015 workplan. He proposed APPEC should focus on the large APP projects and related technology developments, including interdisciplinary and big data aspects.

1. While the SAC will be completing the Roadmap, the APPEC functional centres should prepare a thorough discussion of the large projects in the GA by the following two actions:
   - Project fact sheets (initially created within ASPERA-2) shall be updated to allow a monitoring of the projects' schedule, management, status of funding discussion, commitments, etc. A discussion followed on what should be in the fact sheets and it was decided that an example shall be prepared for the next GA meeting to let the GA decided whether such project fact sheets can be of help for the internal discussion.
   - A census of personnel and funding available in European APP was also proposed, five years after the last census was carried out by ASPERA. However this was considered to be a lot of work requiring a certain amount of manpower.
2. Concerning technology developments, the GS proposed to compile examples of APP-related technology developments with a societal impact into a public-oriented brochure.
3. The APPEC Technology Forum (ATF) 2015 on low light-level detection, which will be held on 22/23 April 2015 in Munich shall be the kick-off for a new series of meetings between academia and industry. To define the topics of future ATFs technology experts from APP projects shall be invited to a meeting mid-2015 to help preparing an APPEC Technology Vision (TV), i.e. to reveal ideas on how to foster cooperation between the individual institutes and how to intensify cooperation between academia and industry. It was suggested by GA members that all infrastructures should identify what are the key technologies for their infrastructure.
4. Concerning inter-disciplinarity links, there will be a workshop in Autumn to inspire collaborations with nearby fields in the domain of geosciences and more generally climate, as we are heading towards an important world summit on climate in December 2015 in Paris. This workshop will have European, but also international aspects and will be organised in close collaboration with the geoscientists.
5. New Horizon 2020 work programmes for 2016/17 are expected to come out in the second half of 2015. A third APPEC workshop to coordinate and support the community activities shall be organized by the end of 2015.
6. Concerning future APPEC common calls, Ino Agrafioti presented the evaluations of the 3rd common call mid-term reports. The projects are proceeding well, but they will not be able to reach all the goals given in their initial proposal, since they received on average two thirds of the funding requested. The SAC members that evaluated the reports mentioned that the changes implemented in the report template, made the evaluation process a lot easier. Concerning future calls, the discussion lead to option of pushing for an EU-funded ERA-NET Cofund. Discussions/negotiations with EC on this subject will need to be prepared accordingly.
7. A second international meeting on a global scale neutrino program will be organised at Fermilab in April. Advances on international coordination are expected from this meeting. A possible outcome could be the organisation of a call with international participation on neutrino and dark matter R&D, included in the topics of the common calls above.
8. Two requests for funding have been received
   - For a conference to take place at the end of August 2015 on gamma-ray astronomy. This request raised the question on what meetings/workshops APPEC should financially support. It was decided that APPEC should not contribute financially to scientific conferences, unless they are organized by APPEC. Specifically for this request, it was considered that given that the ICRC conference is three weeks before, so it would be redundant to organize another one so soon.

- The second PACT workshop, to continue the APPEC activities in APP theory, was delayed to January 2015 to allow considering the recently released results of the Planck satellite. This will be supported by APPEC.
- It was noted that no training or skills activity for students had been proposed for 2015. It was agreed that training of students should have a high priority and that the workplan should be re-balanced to include some appropriate activities.

9. The GS also gave a list of the priorities on outreach (see work plan 2015), based on the experience of the last months, as presented in the outreach presentation above. He further proposed that the outreach officer of APPEC should be placed in a functioning outreach office with experience in APP for better monitoring. In addition, a small editorial team of 2-4 persons should be established to take care of the newsletter, including the outreach officer and a responsible chief editor. Finally, legal questions about the ownership of the APPEC web presentation and the need for contact details and a disclaimer need to be addressed.
10. GA/SAC/JS meetings
    - GA: Two regular GA meetings are foreseen in 2015 (June and December).
    - SAC: to continue the preparation of the update of the European APP roadmap, the SAC will meet at the end of May. A further SAC meeting might be scheduled late 2015.
    - JS: The JS is expected to meet five times, in January, March, July, September, and November 2015. Since education aspects were considered to be very important (see outreach section above), the next JS meeting will consider these aspects.

All these meetings are summarized in the following preliminary table:

Meeting	Location	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Cost / €
Theory Institute	CERN	6-16												3000
JS meeting	Paris	8												500
GA meeting	Paris	9												1000
APPEC outreach meeting	Karlsruhe		5,6											500
JS meeting														500
2nd Int. Neutrino meeting	Fermilab				20,21									0
APPEC Technology Forum	Munich				22,23									3000
SAC meeting														5000
APPEC cosmology workshop	Florence													5000
GA meeting	Amsterdam													1000
APPEC technology vision meeting														1500
JS meeting														500
JS meeting														500
APPEC interdisciplinary meeting	Paris													5000
APPEC Horizon 2020 workshop														3000
JS meeting														500
GA meeting														1000

Total: 31500 euros.

A joint meeting of the GA with the SAC was proposed, but it was decided that this should not be in the next GA (probably the one after that). This is because such a meeting will require more progress on the roadmap, but also more preparation on the side of the GA too.

14. Date of next meeting

The next GA meeting will take place in Amsterdam. A doodle will be created in order to decide the date.