



Astroparticle Physics for Europe

Report of the General Secretary (and Joint Secretariat)

Job de Kleuver et al.

General Assembly Meeting – 5 June 2020

General Assembly composition

- **Poland:** Accession document signed in April
Leszek Roszkowski represents Poland
- **NuPECC:** Marek Lewitowicz (observer)

Activities since last GA meeting (Job)

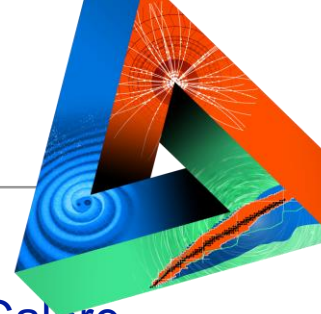
- JS meetings in March and May (via Zoom)
- Preparatory meetings for Town Meeting
- Renewal SAC composition
- SAC meeting in May (Zoom)
- Preparations GA meeting today and December meeting
- Finalising accession Poland
- Contacts with FNRS (Belgium) about APPEC membership
- Several GW and ET related activities and contacts

APPEC Town Meeting postponed until Fall 2021

- Exciting venue in Berlin
- First ideas programme and format
- SAC actions on going
- Excellent moment to celebrate



APPEC-ECFA-NuPECC activities



- 2 Eols received and 1 in preparation within EuCAPT!
- 6 panel members: ML Jurgen Brunner (CPPM, KM3NeT, IceCube), Elena Cuoco (Virgo, EGO), DM: F. Calore (Theory/Pheno, LAPTh), U. Oberlack (Mainz, XENON) GW Tomek Bulik (Warsaw U., Virgo,CTA), J.van den Brand

Expression of Interest

for a synergic research plan of potential interest of the JENAS group

T. Dorigo, D. Boumediene, C. Delaere, D. Derkach, J. Donini,

A. Giammanco, R. Rossin, M. Tosi, A. Ustyuzhanin, P. Vischia,

December 3, 2019

Project title:

Machine Learning-Optimized Design of

Particle Detector Layout for Future Scientific Experiments



Interview with Marco Cirelli, Caterina Doglioni, Gaia Lanfranchi and Florian Reindl

In October 2019 the first Joint ECFA – NuPECC – APPEC Seminar (JENAS) took place, where a call has been issued for novel Expressions-of-Interest. Following this call a group of Dark Matter scientists have drafted an open Eol to gather the broader dark matter community. Among others, Marco Cirelli, Caterina Doglioni, Gaia Lanfranchi and Florian Reindl initiated the "Initiative for Dark Matter in Europe and beyond: Towards

JENAS Eol: "Gravitational Waves for Fundamental Physics"

- ▶ Another initiative that we are considering is a platform on "Gravitational Waves for Fundamental Physics" in the framework of JENAS
- ▶ GWs may in fact soon probe:
 - ▶ the particle nature of dark matter, e.g. via BH environments (ApPEC / ECFA)
 - ▶ the properties of extreme nuclear matter, via NS mergers (ApPEC / NuPECC)
 - ▶ new physics in the early universe, via phase transitions (ApPEC / ECFA)
- ▶ We plan to probe the interest of the community and consider submitting an Eol

Led by Tetyana Galatyuk (Prof at TU Darmstadt, from the nuclear physics / accelerator community) and Paolo Pani (Ass. Prof. in Rome, from the GW / Fundamental Physics community).

Proposal to GA

APPEC could provide the communities proposing the Eols with opportunities for a one-time spending sum of 10kEuro. Short proposals for motivations on spending on specific items would be encouraged from the Eol proponents and then scrutinized by the panel, who would issue a recommendation to APPEC GA on which items to finance between the following items:

1. Workshops, kick-off meetings
2. Schools, Cycles of seminars
3. Developments of Web tools, Citizen Science items from a company or Institute covered by APPEC...
4. Officer professional science writer in a company or institute involved in APPEC...to support in an EC network proposal submission.

At the moment, the position of ECFA is that ECFA does not have a direct budget to function but that in-kind contributions are possible. Once the panel enters in the discussion with the Eol promoters, under the option that joint work can happen between the three communities, the chair would then be available to explore in the ECFA community and Institutes might become interested to contribute in-kind for hosting meetings, workshops, schools.

The position of NuPECC is that they can support the Eol process with very limited funds (few k€) but this kind of support for any action is done after consideration (usually at their plenary meetings) of a well-defined project. It is desirable also that the full process leads to EC applications.

Launch of the Diversity Charter @ JENAS 2019

PLENARY ECFA

- Composition
- Meetings
- Documents

RESTRICTED ECFA

- Composition
- Meetings
- Documents

Diversity Charter



Diversity Charter
APPEC-ECFA-NuPECC

<http://ecfa.web.cern.ch/content/diversity-charter>

Prepared letters to

- to sponsor it at conferences
- send request of endorsement to main experiments and to respond to Survey or send data in other form.

ASTRONET Roadmap

The ASTRONET Science Vision and Infrastructure Roadmap were published in 2007 and 2008 respectively and presented a **strategic plan for the development of European Astronomy**.

A requirement was to have a light-touch update of these **midway through the term**. The **Science Vision was updated in 2013 and the conclusions were fed into the Roadmap update**. This was completed following the outcome of the ESA decisions on the latest missions. The community has been involved through a variety of processes and the final version of the update has been endorsed by the ASTRONET Executive. ASTRONET was created by a group of European funding agencies in order to establish a strategic planning mechanism for all of European astronomy. It covers the whole astronomical domain, from the Sun and Solar System to the limits of the observable Universe, and from radioastronomy to gamma-rays and particles, on the ground as well as in space; but also theory and computing, outreach, training and recruitment of the vital human resources.

ASTRONET aims to engage all astronomical communities and relevant funding agencies on the new map of Europe in 2020

<http://www.astronet-eu.org/>

http://www.astronet-eu.org/sites/default/files/astronet_ir_final_word_doc_for_printing_with_logo.pdf

European Gravitational Observatory (EGO)
Centre National de Recherche Scientifique (CNRS)
Institut de Physique du Globe de Paris (IPGP)
Istituto Nazionale di Fisica Nucleare (INFN)
Istituto Nazionale di Geofisica e Vulcanologia (INGV)
Stichting Nederlandse Wetenschappelijk Onderzoek Instituten (NWO-I)
Karlsruher Institut für Technologie (KIT)
Helmholtz Zentrum Potsdam Deutsches GeoForschungszentrum (GFZ)
Université de Genève (UNIGE)
Centrum Astronomiczne Im. Mikołaja Kopernika Polskiej Akademii Nauk (NCAC)
Instytut Nauk Geologicznych Polskiej Akademii Nauk (ING/PAN)
National Observatory of Athens (NOA)
National Center for Scientific Research – Demokritos (NCSR)
LANDSVIRKJUN (company)
Université catholique Louvain (UcL)
Universiteit Gent (UGent)
Wigner Fizikai Kutatóközpont (Wigner RCP)
Université de Paris (UP)
Universiteit Utrecht (UU)
TNO (company)
Studio Tomás Saraceno GmbH (SME)
Consejo Superior de Investigaciones Científicas (CSIC)

APOGEIA AstroParticle Observatories and Geoscience Infrastructure Activities

- **Deliverable 1: a synergy roadmap of Astroparticle Observatories and Geoscience Infrastructures**
- **Deliverable 2: Characterisation of next generation sites (ET and KMT but also undergrounds labs, deep ocean/lake/ice)**
- **Integrated Activity: Networking, Infrastructure Access and Joint Research Activities**
- **+ Art and Science (T. Saraceno et al.)**
- **Budget 5 M€**
- **Support by APPEC, GEO-8 and Academia Europaea**



Joint Research Activities

- **Sensors at the Astro-Geo Interface.**
 - Gravimetry and Gradiometry sensors , Optical clock sensors
 - Network Synchronisation and time distribution.
 - Early warning systems and Gravity Signal.
- **Site Characterisation and Monitoring.**
 - Characterization and monitoring of current and next generation sites.
 - Mobile sensor networks.
 - Fiber Distributed Antenna systems for seismology and monitoring of deep ocean sites.
- **Muon Radiography and Atmospheric monitoring.**
 - Volcanology & Geoscience, Underground targets and site characterization .
 - Muons and the Ozone at the Antarctica
- **Data analytics and Machine Learning.**
 - Early warning and Machine Learning, Characterization Classification of noise and signals sources in seismic and infrasound sensors networks.
 - Activities identification from seismic signals, Newtonian Noise and Deep Learning.
 - Muon radiography and Machine Learning.
- **Theoretical studies at the interface.**
 - Earth tomography with neutrinos and seismic data
 - Fluid-kinetic dynamics in astrophysical plasmas and geoscience
 - Astro-Seismology of compact objects: modeling and data analysis methods
 - Astoparticles and Heliosphere/Magnetosphere/Ionosphere



Communication and Outreach

Activities are ongoing

- Website up and running
 - Hacker attack on website in February
 - Redirection to suspicious websites
 - Fixed and better protection implemented
- News, Newsletter, Interviews
- Announcement of Events
 - Testing different Calendar extensions for website
- Irregular Twitter usage
- Participation in IPPOG and EPPCN meetings



T2K results constrain possible values of the leptonic CP-violating phase

13TH MAY 2020

Interview with Federico Sanchez about the recent results of T2K collaboration. Recently the T2K experiment published in Nature their results...

[Read More](#)



iDMEu – an EoI gathering the dark matter community

13TH FEBRUARY 2020

Interview with Marco Cirelli, Caterina Doglioni, Gaia Lanfranchi and Florian Reindl. In October 2019 the first joint ECFA – NuPECC...

[Read More](#)



Very first measurements of GRBs from ground – a breakthrough in high-energy gamma-ray observations

20TH DECEMBER 2019

Interview with Razmik Mirzoyan and Stefan Wagner on their successful measurements of GRBs with MAGIC and H.E.S.S. On 14 January...

[Read More](#)



The novel LiquidO Technology

10TH DECEMBER 2019

Interview with Anatael Cabrera on the development of an opaque scintillator. In this issue we would like to give Anatael...

[Read More](#)

Common fund 2019 status

The call for funds for 2019 was sent to participating institutes end of September 2019.

Still some contributions are missing:

- CNRS and STFC each € 5000 €, Greece and Hungary each € 2000.

The financial year 2019 ended with a balance of € 73,019.14

In 2020 by now, following costs were paid: € **2,462.20**

Meeting and Budget plan 2020

Meeting	Location	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Cost / €
APPEC JS-meeting	Zoom			X										-
APPEC JS-meeting	Zoom					X								-
APPEC SAC-meeting	Zoom					X								-
APPEC GA-meeting	Zoom						X							-
APPEC JS meeting	Zoom							X						-
ERICE International School of Cosmic Ray Astrophysics	ERICE								X					3.000,00
APPEC JS meeting	Zoom									X				-
DM direct search comm. Meeting	Zoom?									X				-
APPEC SAC-workingmeeting	Zoom									X				-
APPEC SAC-meeting	Zoom											X		-
APPEC JS meeting	Zoom											X		-
APPEC GA-meeting	Rome/Zoom												X	1.000,00
														4.000,00

Budget 2020

Meetings	4.000,00
EuCAPT	10.000,00
Town Meeting 21	20.000,00
Communication	20.000,00
Costs Webserver	1.300,00
Total	54.300,00

Due to Corona pandemic almost all meetings are remote or postponed

APPEC Technology Forum: Robotics and operation of detectors in a harsh environment (Ivan)

- Venue: Czech Technical University in Prague, Prague, Czech Republic
- Date: June 1 – 2, 2021
- Aim: In person meeting with 60-70 people (including SME industry) with a few major speaker presentations
- Topics: Robotics in medical applications and in Covid-19 era, Robotics in space
Robotics underground
- Web site: <https://indico.utef.cvut.cz/indico/event/20/overview>