

HUMAN TALENT MANAGEMENT

|| HTM sessions (Thank you)

Chairs: Maria Haupt, Livia Ludhova, CPG, Steven Worm

APPEC Town Meeting

June 10, 2022

Berlin

HUMAN TALENT MANAGEMENT

HTM participants addressed questions on gender balance, retaining talent, career plan, young talent visibility, inclusiveness, early education on APP and shared training programs with third countries.

We formulated three proposals related to the Mid-Term report:

P1: Promote HTM (& 11-13) to the first part of the document, after introduction

P2: Write Diversity, Equality & Inclusion subsection along the lines of Attracting and Retaining Talent (very nice!) subsection

P3: Include first tasks for WG diversity, equity and inclusion (WG on HTM?)

and five actions for the new Working Group on diversity, equity and inclusion (WG on HTM?):

WG1: Monitor and list where people can go and where people end up.

WG2: Address the relevance of young researchers in new technologies and methods for APP. Create the APPEC Prize(s?) on technologies (others?) in APP.

WG3: APPEC promote an online course on APP for bachelors

WG4: APPEC communicate education/training plans in APP with third countries

WG5: APPEC support workshop focused on young talent contributions to APP.

HUMAN TALENT MANAGEMENT

Table of Contents:

| | |
|--|----|
| 1. Introduction | 3 |
| 2. High-energy gamma rays | 6 |
| 3. High-energy neutrinos | 13 |
| 4. High-energy cosmic rays | 17 |
| 5. Gravitational waves | 22 |
| 6. Dark Matter | 31 |
| 7. Neutrino properties | 35 |
| 8. Cosmic microwave background | 45 |
| 9. Dark Energy | 48 |
| 10. Multi-probe astroparticle physics | 51 |
| 11. Ecological impact | 54 |
| 12. Societal impact | 56 |
| 13. Open Science and Citizen Science | 59 |
| 14. Human talent management | 61 |
| 15. Inventory of "central" infrastructures | 63 |
| 16. Discussion items for the strategy update | 65 |

In the current strategy, there is no section on human talent management. However, it was deemed an important development that should be addressed in the mid-term review.

P1: Promote HTM (& 11-13) to the first part of the document, after intro

HUMAN TALENT MANAGEMENT

14. Human talent management

Introduction

In the current strategy, there is no section on human talent management. However, it was deemed an important development that should be addressed in the mid-term review.

Attracting and retaining talent

By far the most important asset for astroparticle physics research is human capital. The ambitions in astroparticle physics lying ahead of us have a very long-term perspective and require a sustained and even an increased number of scientists to build and exploit experiments and observatories, to harvest and interpret their results and to devise theories and models to explain the observations and understand our world a little better.

To attract young talented researchers, they should be interested already from a young age. This can be achieved by extensive public engagement, which does not only target children but as important their environment of family, friends, teachers, etc. The outreach efforts in particle physics and astronomy are exemplary in this respect and astroparticle physics can ride along on these programmes. In addition, it is important to make sure that in the outreach efforts also the typical astroparticle physics research questions are obtaining a stage.

A focus on primary and secondary education is important because astroparticle physics touches on some of the big questions that motivate school children to study STEM subjects, which is important both to interest and prepare them for an academic physics or astronomy study later. There are several initiatives to teach topics in astrophysics and related subjects in high schools. These efforts could be streamlined further, e.g., modelled on or in cooperation with the International Particle Physics Outreach Group (IPPOG) that has set up such a structure for particle physics.

Including basic astroparticle physics in the core curriculum, by offering elective courses or by illustrating more general physics and astronomy subjects with astroparticle physics applications or input may awaken the interest in BSc physics and astronomy students for astroparticle physics. Specialised MSc programmes in astroparticle physics, either stand-alone or in association with particle physics and/or astronomy are essential to shape the next generation of astroparticle physicists.

For the training of PhD students, many opportunities already exist, like schools for astroparticle physics or more dedicated topics. There are also many opportunities for postdocs and more senior scientists to keep up to date in astroparticle physics. Special attention may be given to the training on modern artificial intelligence and advanced computing topics since developments in these fields are rapid and of high interest to astroparticle physics.

The knowledge and especially the skills of (young) astroparticle physicists and students are also highly valued in non-academic sectors. Retaining talent in our research community is an issue. To remain attractive the working environment has to be exciting and stimulating, inclusive and competitive with other potential employers in terms of benefits and work-life balance. The rat race for funding and permanent positions are detrimental to a stimulating working environment and tends to overshadow the excitement more and more. More transparency in selection processes and rewards, e.g., such as proposed in the DORA San Francisco Declaration,²⁰ will help but will not completely solve this problem. Concerning the career perspective transparency should be displayed, facilitating PhD students and postdocs to also prepare for a career outside of academia, e.g., by offering appropriate training.²¹ Part

²⁰ San Francisco Declaration on Research Assessment (DORA).

²¹ Barring an increase of research positions smells like a Ponzi scheme, as an increased number of permanent positions will lead to an increasing demand for PhD and postdoc positions, which in turn will need more permanent positions to have a favourable career perspective.

of the uncertainty in career perspective may be compensated by giving trust, responsibility and independence to young researchers, like this is also compensation enough for many senior researchers to stay in academia, despite often non-competing remuneration and benefits when compared to similar non-academic positions. The [JENAA Recognition Working Group](#) may provide handles to address proper recognition of individual scientists, including the more junior ones. Diversity, equity and inclusion is of specific interest, not only to retain but also to be able to attract people to the astroparticle research field. The next section will be specifically devoted to that issue. While for remuneration and benefits no spectacular improvements can be expected, addressing the work-life balance is possible and can make a difference in retaining the best talent in our research field.

Diversity, Equity & Inclusion

On June 17, 2020, at the European Parliament, European Commission President Ursula von der Leyen said:²²

"As a society, we need to confront reality. We relentlessly need to fight racism and discrimination: visible discrimination, of course. But also more subtle racism and discrimination – our unconscious biases. All sorts of racism and discrimination! In the justice system and law enforcement, in the labour and housing markets, in education and healthcare, in politics and migration."

A glance around most of our institutions or even a moment's reflection requires us to conclude that European particle astrophysics is just as guilty as any of these other institutions. The Diversity Charter of APPEC, ECFA, NuPECC can be found via the NuPECC website.²³

The role of APPEC

Efforts should be made to address racial, sexual and physical discrimination in European particle astrophysics despite our inability to collect specific statistics. APPEC plays an important role in publicly denouncing all kinds of discrimination and calling for full inclusiveness. As a continent-wide consortium with strong links to other such organizations, APPEC is in the position to be able to survey and recommend to members practices that are seen to work in other environments. The Diversity Charter of APPEC, ECFA, NuPECC is a good start, but the issues should remain in the active consciousness by continuously repeating the message. To help address these, we suggest working with, among others, the following organisations and movements:

- APS Inclusion, Diversity, and Equity Alliance: <https://aps.org/programs/innovation/fund/idea.cfm>
- The AIP National Task Force to Elevate African American Representation in Undergraduate Physics & Astronomy (TEAM-UP): <https://www.aip.org/diversity-initiatives/team-up-task-force> is another US-based organization.
- Particles for Justice (<https://www.particlesforjustice.org/>) also seems US-centred, though it did, for example, pronounce Sturmia's CERN statement to be unsound.²⁴

Please note that this is merely a starting list for cooperation and involvement.

It is recommended that a standing APPEC working group on diversity, equity and inclusion is set up to develop ideas and stimulate their implementation and that this working group monitors the situation and reports once a year to the APPEC GA.

²² <https://ec.europa.eu/jrc/communities/en/community/jrc-alumni-network/article/speech-president-von-der-leyen-european-parliament-plenary-%E2%80%93>

²³ http://nupecc.org/jenaa/docs/Diversity_Charter_of_APPEC_ECFA_NuPECC-9.pdf & <http://nupecc.org/jenaa/?display=diversity>

²⁴ <https://www.particlesforjustice.org/statement-sexism>

P2: Write Diversity, Equality & Inclusion subsection along the lines of Attracting and Retaining Talent (very nice!) subsection

HUMAN TALENT MANAGEMENT

The role of APPEC :

“APPEC plays an important role in publicly denouncing all kinds of discrimination and calling for full inclusiveness ... the issues should remain in the active consciousness by continuously repeating the message.”

Awareness of our unconscious biases

do not want an advantage, just being recognized

Already written in the document: Set up APPEC working group on diversity, equity and inclusion (**HTM?**) with the mandate to develop ideas, stimulate implementation and report to APPEC GA

P3: A bit more proactive writing in the document: “including ...”

- recommendation/request to publicly show gender balance participation at the conference venue in all promoted/supported meetings (<**25%** in Town meeting)
- promote/share Gender Equality Plans among members (required by EU grants)
- promote/support programs to go to schools (12-16 yrs old and their teachers)

HUMAN TALENT MANAGEMENT

Short report on discussions/proposals for new WG:

APPEC HTM is the way to promote astroparticle physics as a community.

Consensus on the lack of a career plan, and, most importantly, “perception of” the lack of a career plan (with impact on gender balance).

WG1: Needs of mentoring for career plan in APP: Monitor where people can go and where people end up.

Awareness of people developing methods and technologies: Not visible enough.

Not properly addressed in APPEC document.

WG2: Address the relevance of young researchers in new technologies and methods for APP. Create the APPEC Prize(s?) on technologies (others?) in APP.

Education in APP mostly absent in BS. Few cases, where APP is optional.

WG3: APPEC promote an online course on APP for bachelors

Collaboration with third countries already exists at the level of Universities, ...

APPEC is in position to promote/facilitate/communicate the collaboration in education/training with third countries (Master, double PhD programs, ...)

WG4: APPEC communicate education/training plans in APP with third countries

Help young people to contribute to APPEC. Young talent is promoted by giving them visibility.

WG5: APPEC support workshop focused on young talent contributions to APP.