

Astronomy and Space Physics Division meeting

29 March 2023, 16:00–17:30

Riffi room, Tampere-talo, Tampere (and on Zoom)

Chairs: Alexandra Veledina (online) and Maxime Grandin (on-site)

1. Attendance

On-site: Maxime Grandin, Emilia Kilpua, Daniel Price, Diana Morosan, Chaitanya Sishtla, Mika Juvela, Peijin Zhang, Kalevi Mursula, Ville-Vertti Linho, Julia Ruohotie

Online: Alexandra Veledina, Derek McKay, Elina Lassi, Hannu Koskinen, Kimmo Kanto, Rami Vainio, Ranadeep Sarkar, Riku Rautio, Thomas Ulich

2. Minutes

Selection of persons taking the minutes (Maxime Grandin) and checking the minutes (Diana Morosan).

3. Announcement by the Division secretary

The Division webpage was recently created; it is hosted on the Suomen Fyysikkoseura webpages.

URL: <https://www.fyysikkoseura.fi/language/en/about-us/working-groups/astronomy-and-space-physics-division/>

Currently under construction, will be populated soon with information, such as minutes of meetings, announcements, etc.

4. Presentation by Prof. Emilia Kilpua: ESA Science Programme Committee representative for Finland

Presentation of the ESA SPC role and activities, including:

- planning, design of scientific satellite missions;
- collaborations with other space agencies (NASA, JAXA, CAS, CSA, etc.): SMILE, Solar-C, Einstein Probe, Nancy Grace Roman Space Telescope, Martian Moon Exploration;
- calls for missions of various types (small, fast, medium, large/flagship);
- mission phases (mission call, phases 0, A–F);
- L-missions in preparation and planning (LISA, New(Athena), L4 missions for the Giant Planets' moons);
- important milestones in 2023–2024 (launches of JUICE and Euclid, adoptions of LISA and Envision, selection of next M missions to Phase A – currently 5 are in Phase 0);
- current discussion items: cadence and emphasis between different mission class sizes, diversity of the SP, need and feasibility of cost caps, planned restructuring of ESA science programme due to budget cuts and lessons learnt from the recent missions, increased emphasis on early mission planning (phases 0–B1) to save money at later stages, how to increase the appreciation of fundamental science research;
- Finland's views conveyed in the latest SPC meetings: support for F-class missions (fast and flexible, can have large return value), Athena continuation, as well as Cluster, Integral, Mars Express, importance to keep L missions within budget and not dominate the programme (no two L missions together);
- PRODEX funding: established in 1986 as an optional programme helping institutions and industry to work on ESA experiments, Finland joined in 2019, so far one project (Comet interceptor), ask Pauli Stigell for more details.

Comments/questions:

- The discussion items haven't evolved much in the past 20 years. Human power resources are limited (not only money) to carry out the work associated with mission design, often the same people are involved in many projects.

- Difficulty to reallocate the money set aside for a mission which ends up being terminated to other purposes. Importance to terminate missions relatively early instead of waiting till the last moment (less money is wasted).
- If a mission goes beyond the budget (e.g. New(Athena)) and then is cut, what happens to the community behind it? Do they lose their opportunity for the next 10 years?
- What is the procedure associated with phase F (disposal) and mission extensions? It depends on the budget (besides logistical limitations such as fuel available), extensions are assessed every few years. Disposal is an important phase nowadays, either cemetery orbits or disintegration into the atmosphere/sea; it is crucial to avoid creating more space debris which lead to increased collision hazard.

5. Discussion of the Application Supporting Committee

Idea: Organise support for early-career scientists from the community who want to apply for funding (e.g. ERC) to get support, so that they have more chances to make it to the interview phase. The time to prepare for the interview is rather short, and questions can be on a very broad range of topics due to the diverse panel. In Greece, an application supporting committee exists to prepare the candidates to answer general questions. Do we want to set this up in Finland too?

In practice, this would mean setting up an event gathering senior and experienced scientists willing to help the applicants. Probably to begin with, it would be a one-time event.

Discussion:

- Universities already organise this themselves (training sessions, seminars). It is also often the case that supervisors/group leaders organise the coaching, in addition to the university research services.
- Difficult to coordinate at inter-university level, as universities are competing against each other. It will likely be hard to convince universities to support such a coaching. If several candidates from Finland make it to the interview, they are themselves competing against each other.
- It is very difficult to make it to the interview phase.

6. Discussion of the “Space Studies Day”

There are not so many opportunities for scientists from our Division to meet (especially astronomy vs space physics researchers) outside of Physics Days. The idea would be to set up an event analogous to the one the Particle Physics Division has. During such “Space Studies Day”, the division would gather doctoral researchers and young postdocs, so that they can present their science to each other.

Private foundations, FinCom, and other sources of funding could be considered.

Discussion:

- Earlier there existed a joint graduate school, so that doctoral researchers in astrophysics and space physics could meet at national level. Now, the doctoral schools are disjoint and do not necessary have synergy with each other. FinCOSPAR has limited capability to organise this.
- But reviving this would be very valuable for the community, as students don’t know each other. If they individually get travel funding, they are unlikely to go to a national-level meeting, but rather to a field-specific conference.
- Cross-university shared teaching is being discussed. This could provide a platform to organise a summer school relevant to the Division. It would however be critical that everyone comes in person, as a hybrid format would not be beneficial for that purpose.
- A summer school could be worth a few (~5) ECTS credits, so that it becomes attractive to students, and worth making the effort to come.
- Universities’ graduate schools could fund the trips of their own students. So a realistic funding plan would be that all universities contribute, and ideally additional money would be obtained from foundations.

7. AOB

The Division chair and secretary announce that they intend to step down during the next Physics Days (2024), which will take place in Helsinki. If following the tradition, the new chair should ideally come from the space physics side and the new secretary from the astrophysics side of the Division.

8. Meeting close