

The Finnish Physical Society

Annual Report 01.01.2023–31.12.2023

ADMINISTRATION

Board

Board as elected in the Annual Meeting 30.03.2023

Daniel Price, Chair (postdoctoral researcher, University of Helsinki)
Juha Muhonen, Vice-Chair (associate professor, University of Jyväskylä)
Johannes Niskanen, Secretary (university research fellow, University of Turku)
Jani-Petri Martikainen, Treasurer (university lecturer, Aalto University)
Mikko Nissi (associate professor, University of Eastern Finland)
Johanna Närväinen (senior scientist, VTT, industry representative)
René Bes (docent, University of Helsinki)
Lauri Holappa (docent, University of Oulu)
Inkeri Kontro (university instructor, Tampere University)
Ondřej Krejčí (postdoctoral researcher, Aalto University)
Marco Ornigotti (associate Professor, Tampere University)

Board as elected in the Annual Meeting 03.03.2022

Matti Silveri, Chair (Academy of Finland Research Fellow, University of Oulu)
Daniel Price, Vice-Chair (postdoctoral researcher, University of Helsinki)
Johannes Niskanen, Secretary (university research fellow, University of Turku)
Jani-Petri Martikainen, Treasurer (university lecturer, Aalto University)
Eleanna Asvestari (Academy of Finland postdoctoral researcher, University of Helsinki)
Lasse Laurson (professor, Tampere University)
Mikko Nissi (associate professor, University of Eastern Finland)
Johanna Närväinen (senior scientist, VTT, industry representative)
Juha Muhonen (associate professor, University of Jyväskylä)
Milica Todorović (assistant professor, University of Turku)

The board met nine times in 2023 (10.02, 13.03, 30.03, 19.04, 01.06, 07.09, 18.10, 24.10, 01.12).

Members

The board of the Finnish Physical Society (FPS) accepts the members of FPS after having received their application. A member can resign by contacting the secretary, and is then immediately removed from the membership registry. Due to this practice, the exact membership count may change at any time.

On January 1 2023, FPS had 706 members with the following distribution: 1 honorary member, 7 fellow members, 9 student members, 32 junior members, 129 senior members and 528 regular members.

On December 31 2023 FPS had 660 members with the distribution: 1 honorary member, 8 fellow members, 13 student members, 32 junior members, 123 senior members and 483 regular members.

In the second board meeting of 2023, the board resolved to dismiss 66 members under statute four for non-payment of the membership fee for at least two years. Therefore, the decrease from 706 to 660 represents a net gain of 20 active members. This is in contrast to the net loss of 20 in 2022, and suggests increased interest in the activities of the Finnish Physical Society.

In the third board meeting of 2023, Emeritus Professor Hannu Koskinen was accepted as a Fellow of the Finnish Physical Society following a recommendation from the Fellow Working Group. This news was proclaimed during the closing ceremony of Physics Days 2023.

Accounts

The main income of FPS is the membership fees and activity support by The Federation of Finnish Learned Societies for international activities. The largest expenses in 2023 were the membership fee of the European Physical Society, accounting services, as well as FPS grants and prizes. The FPS again made a relatively large profit in 2023, however, this is primarily due to having no Nobel laureate visits in 2023 and significantly reduced postage expenses. The 2024 budget will consider recent profits and increase sustainable spending accordingly.

Annual meeting

The FPS organised its annual meeting on 30.3.2023 as a hybrid meeting at Tampere Hall during Physics Days 2023 with 34 participants. This discussed all matters required per statute eleven. The most significant point of discussion was the budget surplus of approximately eleven thousand euros. The agreed budget had increased spending to increase membership benefits and the society's impact. The meeting also elected the board members.

General working principles

The FPS has continued working according to its principles of promoting physics research; the careers of young researchers; and teaching, education and outreach activities; and has taken actions toward these goals throughout the year. In addition, the society has maintained its international contacts.

In the fourth meeting of 2023, the board acknowledged the increasing prevalence of the English language in FPS operations and resolved to work towards being completely bilingual. Emails and tweets were primarily written in English and translated by Finnish-speaking members of the board, while efforts to ensure parity on the website

were started and continue into 2024. Additionally, while the Finnish-text bylaws retain legal supremacy, the board published an unofficial English translation to increase accessibility.

The board also restructured its operations to dissolve its standing committees with the exception of the management and communications committees, with members assigned tasks as needed to ensure an even distribution of work.

To further increase operational efficiency, in the fifth meeting of 2023, the board resolved to take advantage of the free Google Workspace available to non-profit entities and to redirect all email from the TSV servers to the new Workspace. This was completed by the sixth meeting, and enabled the creation of dedicated email addresses for the President, Secretary, Treasurer, Communications team, and others as needed. This will ensure that future members of the board will retain all relevant emails received and sent on behalf of the Society. Additionally, it enabled the migration of all FPS files to a dedicated Google Drive to ensure longevity and data security. Further improvements will take place in 2024.

ACTIVITIES IN FINLAND

Divisions, Working Groups & Local Physicists' Clubs

In the fourth board meeting of 2023, the board resolved to prepare a comprehensive survey of FPS members to determine membership and interest in all FPS Divisions and Working Groups. It was subsequently amended to include questions regarding demographics and satisfaction for direct comparison to the previous such survey in 2020

(<https://www.fyysikkoseura.fi/language/en/2020/04/27/finnish-physical-societys-membership-survey-results/>). Its development will continue into 2024.

Jyväskylä, Kuopio, Oulu and Turku have local Physicists' clubs.

The Physics Education Division had a meeting during Physics Days 2023 and elected Inkeri Kontro as its chair. The Division had online meetings together with NUPE (Network for University Physics Educators). The Division's members heavily overlap with NUPE members. NUPE and its sister network for mathematics education, NUME, organised the SHEF Summit for division based education research and teaching development. FPS sponsored a coffee break for the SHEF Summit.

<https://numefinland.webnode.co.uk/1/terveysia-shef-summit-23-tapahtumasta/>

The Particle Physics Division hosted their annual Particle Physics Day and Division Meeting in Jyväskylä on 12 October 2023.

Diversity in Physics, Finland (FinDiP)

Diversity in Physics Finland (FinDiP) is a working group of the Finnish Physical Society promoting diversity, inclusion and wellbeing in physics. FinDiP is run by a national, cross-sectional board. FinDiP acts also as a link to the International

Union of Pure and Applied Physics (IUPAP)'s International Conference on Women in Physics event and related activities. FinDiP has been co-chaired by Milica Todorović, Tuuli Miinalainen, Daria Anttila and Ondřej Krejčí (current chair). FinDiP has been very active on the national level - through organising a wellbeing group meeting among physics departments of Finnish universities and by organising a session on diversity and non-discrimination at Physics Days 2022. FinDiP is also preparing a followup session for the international (Nordic) Physics Days 2023 conference. Additionally, the seventh board meeting of 2023 allocated €1000 to FinDiP for the planning of a public lecture to be held in 2024. More information can be found at <https://www.fyysikkoseura.fi/language/en/about-us/working-groups/diversity-in-physics-finland-findip/>

Finnish Young Minds (FYM)

Finnish Young Minds (FYM) is an organisation under the Finnish Physical Society and originally part of the EPS Young Minds. Young Minds brings together young researchers from undergraduate level to post-doctoral researchers. The aim is to increase interaction and collaboration among students and young researchers from local and national institutions, promote awareness of physics research to local communities outside academia and to build an international network.

The FYM made it known to the board that they have been struggling significantly to attract and retain members and had previously lost their EPS affiliation. The board resolved to encourage participation by supporting their advertising efforts and contacted the EPS for assistance in officially reactivating their status, an activity which remains ongoing.

Greatest Physicists Lecture Series

The Greatest Physicists lecture is jointly organised by the Finnish Physical Society and the Physics Alumni of Aalto University. The 2023 lecture was held on 29 May as a hybrid format, in person in Helsinki, and remotely via Zoom. The lecture was given by FPS Fellow Professor Emeritus Hannu Koskinen and was titled Hannes Alfvén: The Father of Plasma Physics. The lecture was recorded and uploaded to the FPS YouTube Channel (<https://www.youtube.com/@FinnishPhysicalSociety>). It has since been viewed 173 times and was promoted by the European Physical Society through their newsletter.

Physics Days 2023

This was organised by Tampere University on 29-31 March 2023 with the theme of "Physics makes dreams come true." It was the first in-person conference since Physics Days 2019 due to the pandemic in the intervening period. It was semi-hybrid with the plenary sessions streamed to the public. The plenary speakers were Yvette Cendes, Roy Harrison, Alexander Szameit, Stuart Parkin, and Salla Kurhila. Their lectures remain available on the conference website (<https://events.tuni.fi/physicsdays2023/>).

Physics Days 2024

This will take place on 4-6 March 2024 with the theme of “Strangers united”, organised by the University of Helsinki Department of Physics, the Institute for Atmospheric and Earth System Research, and the Helsinki Institute of Physics. See their website for the latest details (<https://www.helsinki.fi/en/conferences/physics-days-2024>).

Visits by Nobel laureates in physics

In 2023, Pierre Agostini, Ferenc Krausz, and Anne L’Huillier were awarded the Nobel Prize in Physics. As is tradition, all three laureates were personally invited to visit Finland in 2023-2024 by the Finnish Physical Society along with the Research Council of Finland, the Finnish Academy of Science and Letters, the Finnish Society of Sciences and Letters, the University of Helsinki, and Aalto University. Funding for the potential visit was granted by the Finnish Academy of Science and Letters and the Finnish Society of Sciences and Letters.

Anne L’Huillier agreed to visit Helsinki on 6 March 2024 to give a public lecture at Physics Days 2024. Pierre Agostini and Ferenc Krausz were unable to commit to the date, but hope to visit later in the year when scheduling allows.

Other national activities

The FPS is a member of The Federation of Finnish Learned Societies and The Finnish Terminology Centre.

The FPS paid the membership fee of the Finnish Physics and Mathematics Students Association to the International Association of Physics Students.

INTERNATIONAL ACTIVITIES

European Physical Society (EPS)

The FPS has participated in the activities of the European Physical Society (EPS) and its Council, Divisions, Groups and Committees. FPS President Daniel Price attended the EPS Council meeting on 26 May 2023 in Porto, Portugal. Mairi Sakellariadou was elected to the position of EPS President Elect. Stuart Palmer, Karin Zach, Eugenio Coccia, Katharina Lorenz, Andreas Schopper, Ian Bearden, Christian Beck, Alessandra Fantoni, Anna Lipniacka, Anna Di Ciaccio, and Roberta Caruso were elected to the EPS Executive Committee. President Maksym Strikha and Vice President Mikhail Belogolovskii of the Ukrainian Physical Society joined remotely for a special discussion on how the EPS could support the Ukrainian physics community.

The FPS President also attended the online extraordinary EPS Council meeting on 24 November 2023. The extraordinary meeting unanimously approved changes to the EPS Constitution and Bylaws following recommendations by specialised tax lawyers to ensure their continued non-profit status. The possibility to allow electronic voting and meetings were also written in.

PRIZES AND GRANTS

Grants to support activities promoting physics

In the fifth meeting of 2023, the board resolved to keep the small grant call open continuously throughout the year until the budgeted funds were exhausted to attract greater numbers of applications than in previous years. Subsequently, two grants were awarded in 2023, an increase compared to the one of 2022.

In the fifth board meeting of 2023, Samuli Nyman was awarded €1000 for the development of a more cost-effective CanSat Kit with additional features and better performance to be distributed to schools by ESERO Finland.

In the sixth board meeting of 2023, Emilia Kilpua was awarded €150 to support Researcher's Night activities of the Space Physics Group at the University of Helsinki which reached 15 kindergarten children and 48 middle school students.

Best poster and oral presentations at Physics Days

Each year the Finnish Physical Society awards four Hannu Koskinen Presentation Prizes to support early-career physicists and to acknowledge excellent presentations. The two best oral and the two best poster presentations receive a certificate and a prize of €200.

The 2023 poster presentation awardees were:

Madona Mekhael, from Tampere University

"Multiple-Resonant Waveguide Gratings for Enhanced Second-Harmonic Generation."

Jani Taskinen, from Aalto University

"Quantum metric and non-Hermitian Berry curvature in a plasmonic lattice."

The 2023 oral presentation awardees were:

Marjut Hukkanen, from the University of Jyväskylä and LP2i Bordeaux

"Neutron-rich refractory nuclei studied via precision mass measurements at JYFLTRAP."

Matilda Sipilä, from the University of Turku

"Materials discovery using natural language processing."

Master's thesis prize

The Finnish Physical Society's Master's Thesis Prize is awarded annually to the best Master's thesis in the field of physical sciences in Finland. It aims to support early-career researchers and to acknowledge their exceptional work. The prize consists of €1000 and includes one year of free membership to the Finnish Physical Society. The award is presented during the opening ceremony of Physics Days and the winner presents their thesis.

In 2023, the Prize was awarded to:

Otto Veltheim, from the University of Helsinki

"Quantum State Tomography with Observable Commutation Graphs."

Honorary mention was given by the board to two other finalists:

Joni Eronen, from the University of Oulu

“Hyperpolarization of 3-fluoropyridine via Signal Amplification by Reversible Exchange.”

Elvis Pillinen, from the University of Eastern Finland

“Spectral polarization modulation of partially coherent pulses.”

All three finalists produced blog posts describing their theses, which are available on the FPS website.

PUBLICATIONS, JOURNALS, MEDIA

Arkhimedes

The FPS publishes Arkhimedes together with the Finnish Mathematical Society and Fysikersamfundet i Finland. In 2023, Arkhimedes published two issues electronically at <https://journal.fi/arkhimedes> where it can be read freely. The themes covered were, for example, mathematical concepts, the new Finnish Center of Excellence in Randomness and Structures, and physics teaching and history in Finland.

EPL (Europhysics Letters)

EPL is published under the scientific policy and control of the European Physical Society by EDP Sciences, IOP Publishing and Società Italiana di Fisica for a partnership of 17 European physical societies (the EPL Association). FPS is a member of the EPL Association, which yielded approximately 1300 € of profit in 2023.

Europhysics News

Europhysics News is the magazine of the European physics community, owned by the European Physical Society (EPS) and produced in cooperation with EDP Sciences. It is distributed to all EPS Individual Members and many institutional subscribers. Europhysics News is delivered electronically to the FPS members, and is free to read at <https://www.europhysicsnews.org/>

New Journal of Physics

FPS is an associate member of the New Journal of Physics. Individual FPS members are eligible for a 5% discount to the article charge when they publish in the New Journal of Physics.

Social media and webpages

In the fifth board meeting of 2023, we resolved to increase our social media activity, primarily by having regularly scheduled content that promotes relevant and important international days, e.g., the International Day of Women and Girls in Science.

- FPS website: www.fyysikkoseura.fi
- Twitter/X: <https://twitter.com/Fyysikkoseura>
- Facebook: Group "Suomen Fyysikkoseura".

Finnish National Committee of the International Union of Pure and Applied Physics (IUPAP)

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The Finnish National Committee represents Finland in the International Union of Pure and Applied Physics (IUPAP) and its commissions. The IUPAP's mission is to assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity. The national committees help to achieve this goal by serving as a link between IUPAP and national physics societies, universities and other national activities in physics. The committee has promoted physics research, education and related outreach activities in Finland.

The Board of the Finnish Physical Society acts as the Finnish National Committee.

Finnish National Committee as elected in the Annual Meeting 30.03.2023

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Milica Todorović (assistant professor, University of Turku)

The Finnish National Committee in Physics has met as the board of FPS eight times in 2023. The IUPAP matters were discussed in several FPS meetings covering topics such as attending the General Assembly and the promotion of physics in Finland. The Committee received €8200 from the Council of Finnish Academies for its operations in 2023. The Committee funded the attendance of three Finnish representatives to the International Conference on Women in Physics, held virtually from 10-14 July 2023. Additionally, Ilya Usoskin attended the IUPAP C4 commission meeting in Nagoya, Japan from 25-3 August 2023.

The Committee Chair attended the IUPAP General Assembly on 9 October 2023 in Geneva, Switzerland, approximately 100 years after the very first General Assembly took place in Paris. Nepal was accepted as the first member of the new Associate Territorial Member category. It was resolved to ensure that IUPAP-supported conferences are accessible to physicists at all stages of their careers and from all groups and countries.

Full details of all of the passed resolutions and discussions are available on their website at

<https://iupap.org/who-we-are/internal-organization/general-assembly/32nd-general-assembly/>. The next General Assembly will take place in Hainan, China on 6-12 October 2024.

Finland's representation in IUPAP Commissions for 2021-2024 are as follows:

- C2: Symbols, Units, Nomenclature, Atomic Masses & Fundamental Constants: Erkki Ikonen (member)
- C4: Commission on Astroparticle Physics: Ilya Usoskin (member)
- C5: Low Temperature Physics: Mika Sillanpää (member)