

The Finnish Physical Society

Annual report 1.1.–31.12.2022

ADMINISTRATION

Board

Board as elected in the Annual Meeting 3.3.2022

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)

Board as elected in the Annual Meeting 25.3.2021

Anu Kankainen, chair (professor, University of Jyväskylä)
Matti Silveri, vice-chair (Academy of Finland Research Fellow, University of Oulu)
Hannakaisa Lindqvist, secretary (assistant professor Finnish Meteorological Institute)
Jani-Petri Martikainen, treasurer (university lecturer, Aalto University)
Eleanna Asvestari (Academy of Finland postdoctoral researcher, University of Helsinki)
Lasse Laurson (professor, Tampere University)
Jack Lin (Academy of Finland postdoctoral researcher, University of Oulu)
Johannes Niskanen (university research fellow, University of Turku)
Mikko Nissi (associate professor, University of Eastern Finland)
Johanna Närväinen (senior scientist, VTT, industry representative)
Daniel Price, (postdoctoral researcher, University of Helsinki)
Milica Todorović (assistant professor, University of Turku)

The board met six times in 2022 (31.1., 17.2., 22.3., 30.5., 2.9., 20.11.).

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, 2022, FPS had 718 members with the distribution: 1 honorary member, 7 fellow members, 29 junior members, 4 student members, 129 senior members, 548 members.

On December 31 2022 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 members.

The most notable change is net loss of 20 regular members, somewhat compensated by the increase of the numbers of student and junior members.

Accounts

The main income of FPS is the membership fees and activity support by The Federation of Finnish Learned Societies for international activities. Largest expenses in 2022 were the membership fee of the European Physical Society, accounting services, organization of the 75th anniversary event as well as FPS grants and prizes. FPS made a relatively large profit mainly because the estimated costs of publishing Arkhimedes, and visits by Nobel laureates were not realised in 2022. This will be taken into account in the budget 2023.

Annual meeting

FPS organized its annual meeting 3.3.2022 online with 40 participants. The most important decisions were approval of the annual reports, accounts and action plans. Related to the structural changes in the operational mode of FPS, the annual meeting slightly reduced the membership fees. The meeting also elected the board members.

General working principles

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

ACTIVITIES IN FINLAND

Divisions, working groups & Local physicists' clubs

The Board decided that the Vice Chair would assume the role of intermediary between FPS Divisions and Working Groups and the Board. The Divisions of Physics Education, Particle Physics, Computational Physics, Medical Physics, and Astronomy and Space Physics were successfully contacted. The Divisions of Accelerator Physics, Synchrotron Radiation, Industrial Physics, and Vacuum Technology were uncontactable.

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

The Particle Physics Division hosted their annual meeting in Helsinki, 24 November 2022.

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 is co-chaired by Milica Todorović and Tuuli Miinalainen. FinDiP has been very active both nationally and internationally. FinDiP organised a session on diversity and non-discrimination theme at Physics Days 2022. More information can be found at <https://blogs.helsinki.fi/diversityinphysics/>

Finnish Young Minds (FYM)

Finnish Young Minds (FYM) is an organization under the Finnish Physical Society and 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.

EPS Historic Site Sodankylä Geophysical Observatory

European Physical Society awarded Sodankylä Geophysical Observatory the EPS Historic Site distinction as an acknowledgment of the observatory's long-term work. Sodankylä Geophysical Observatory is the first EPS Historic site in Finland. The President of EPS Luc Bergé revealed the award in Sodankylä on Thursday 8th December, 2022. The event was organized by Observatory together with FPS and EPS.

Sodankylä Geophysical Observatory was founded in 1913 by The Finnish Academy of Science and Letters to perform long-term geophysical observations, study changing geo- and space environments, and coordinate international space projects in Finland. When the Observatory was established, it was one of the first observatories north of the Arctic circle. The longest data set is over 100 years long (since 1914), including measurements of fluctuations in the geomagnetic field.

Today, the Observatory is an independent research organization within the University of Oulu having a wide range of national and international duties. These include ongoing geomagnetic observations and world-class space and arctic situational awareness and research capabilities. The Observatory has dedicated instruments in over twenty measurement locations from Svalbard to Antarctica.

FPS 75th anniversary celebrations

FPS celebrated its 75th anniversary by a series of talks and a dinner hosted at the University of Helsinki on the 2nd of September. The event drew physicists from all across Finland to the Porthania building in Helsinki and the talks were broadcast live for those unable to attend.

The event was opened with the reflective words by the FPS chair Matti Silveri, and followed up by a jovial look at how far the Finnish Physical Society and physics in Finland have come during the 75 years by Emeritus Prof. Hannu Koskinen. The future and history outlooks were followed by a talk by the President of the Academy of Finland, Paula Eerola. Dr. Eerola laid out the future of physics funding in Finland and highlighted how far we have come but also how much more we still have to do in terms of diversity. This was followed by a look at the

commercialisation of Finnish science, from the perspective of Jan Goetz, the CEO of IQM Oy. Then rounding off the event was Prof. Sabrina Maniscalco in her inspiring talk about the key to unlocking the power of quantum computers.

The following buffet dinner was a clear celebration of the physics community in Finland and its history. There were reunions with old friends and former mentors. The event was also a happy reunion after years of only online events due to the covid pandemic. FPS would like to thank everyone who took part in the celebrations, and indeed all of our members for making our community what it is today. We will continue advocating for physics in Finland and look forward to celebrating our next milestone with you.

Greatest Physicists lecture series

The Greatest Physicists lecture is jointly organized by FPS and Aalto alumni in Physics. The 2022 lecture was held on 23 May 2022 as a virtual event due to the pandemic and was given by award-winning biographer and science writer Dr Graham Farmelo, titled 'Paul Dirac: Prophet of mathematical beauty'

<https://www.fyysikkoseura.fi/language/en/events/historian-suuret-fyysikot/>.

Physics Days 2022

This was a virtual conference due to the pandemic, organised by Aalto University with the theme "Future leaders", and held from 2-4 March 2022 (<https://physicsdays2022.aalto.fi/>). The versatile program was of high quality. The invited speakers were Yiwen Chu, Niels Asger Mortensen, Giovanni Volpe, Mie Andersen, Michael Ramsey-Musolf, Sabrina Maniscalco, and Pekka Manninen. The Studia Generalia lecture was held by Taina Kurki-Suonio with the title "Towards the wild years of fusion?" ("Edessä fuusion villit vuodet?")

Physics Days 2023

This will be the first in-person conference since Physics Days 2019 due to the pandemic. It is organised by Tampere University and will take place in Tampere from 29-31 March 2023 (<https://events.tuni.fi/physicsdays2023/>).

Visits by Nobel laureates in physics

In 2022, Alain Aspect, John Clauser and Anton Zeilinger were awarded the Nobel prize in physics. Together with the physics community, FPS has sent invitations to all laureates to visit Finland in 2022-2023, and funding for the visits was awarded by the Finnish Academy of Science and Letters and the Finnish Society of Sciences and Letters. Unfortunately, the Nobel laureates were not able to visit Finland in 2022. FPS will work on making the visits possible in 2023.

Other national activities

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

INTERNATIONAL ACTIVITIES

European Physical Society (EPS)

FPS has participated in the activities of the European Physical Society (EPS) and its Council, Divisions, Groups and Committees. The chair of the FPS Matti Silveri participated in the EPS Forum & Council 2.-4.6. 2022 in Paris.

The format of the EPS Forum included a series of conferences, round tables and workshops on various topics. The EPS Forum showcased the latest developments in physics both from their potential links with the industry and current opportunities of employment for the young generation of physicists and from the most recent achievements in fundamental science. The Council meeting accepted the activity report and accounts 2021, and the budget 2022. The Council also discussed on EPS response to the continuing attacks and war by the Russian Federation against Ukraine. EPS Council discussed ways to support Ukrainian physicists.

PRIZES AND GRANTS

Grants to support activities promoting physics

In summer-autumn 2022, FPS opened a call for small grants to support activities promoting physics. Luuppi Ry received 500 € to support organization costs of the annual physics and mathematics students conference IntegraatioFest at Tampere.

Best poster and oral presentations at Physics Days

The Finnish Physical Society's Hannu Koskinen best poster and oral presentations at Physics Days are awarded to support early career physicist and acknowledge excellent presentations. The best talks were Mira Viljanen (University of Helsinki) "Nanoimaging of the phloem in tension wood of silver birch using X-ray scanning diffraction" and Riku Tuovinen (University of Helsinki) "Electron correlation effects in superconducting nanowires in and out of equilibrium" and the best poster were Mikko Kivekäs (University of Jyväskylä) "Elastic scattering and recoiling cross-sections measured by ToF-ERDA for low energy heavy ions" and Manuel Kuchelmeister (Aalto University) "Multi-fidelity machine learning to accelerate materials research".

Master's thesis prize

The Finnish Physical Society's Young Physicist Prize is awarded annually to the best MSc thesis in physics in Finland. The award ceremony takes place at Physics Days. The prize is 1000 € and includes a one-year free membership to FPS. It can also be split if considered necessary. The board of FPS acts as the evaluation panel for the theses.

The Master's thesis prize 2022 was awarded to Kaapo Seppänen from the University of Helsinki for her MSc thesis "HTL self-energies in Hot and Dense QCD". The other finalists were Katja Tolkkinen (University of Oulu) with the thesis "NMR Cryoporometry of Porous Materials and Articular Cartilage Models", Perttu Hilla (University of Oulu) with the thesis "Molecular Dynamics of Xe in Cryptophane-A", and Jonas Suni (University of Helsinki) with the thesis "Foreshock Compressive Structures as the Cause of Magnetosheath Jets". All finalists wrote a blog text / video presentation on the FPS webpages.

PUBLICATIONS, JOURNALS, MEDIA

Arkhimedes

EPS publishes Arkhimedes together with the Finnish Mathematical Society and Fysikersamfundet i Finland. In 2022, Arkhimedes published three issues electronically at <https://journal.fi/arkhimedes> where it can be read freely. The themes covered were, for example, quantum technologies, international mathematical and physics olympiads, promoting mathematics, and reforming a scientific journal.

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 about 1700 € of profit in 2022.

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

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

FPS Newsletter

FPS collects recent news and activities of the FPS into an FPS Newsletter sent to the members via email. Two newsletters were published in 2022.

Finnish National Committee of the International Union of Pure and Applied Physics (IUPAP): Annual report 1.1.–31.12.2022

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 3.3.2022

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)

Finnish National Committee as elected in the Annual Meeting 25.3.2021

Anu Kankainen, chair (professor, University of Jyväskylä)
Matti Silveri, vice-chair (Academy of Finland Research Fellow, University of Oulu)
Hannakaisa Lindqvist, secretary (assistant professor Finnish Meteorological Institute)
Jani-Petri Martikainen, treasurer (university lecturer, Aalto University)
Eleanna Asvestari (Academy of Finland postdoctoral researcher, University of Helsinki)
Lasse Laurson (professor, Tampere University)
Jack Lin (Academy of Finland postdoctoral researcher, University of Oulu)
Johannes Niskanen (university research fellow, University of Turku)
Mikko Nissi (associate professor, University of Eastern Finland)
Johanna Närväinen (senior scientist, VTT, industry representative)
Daniel Price, (postdoctoral researcher, University of Helsinki)
Milica Todorović (assistant professor, University of Turku)

The Finnish National Committee in Physics has met as the board of FPS six times in 2022. The IUPAP matters were discussed in several FPS meetings covering topics such as attending the General Assembly and the IUPAP Centennial Symposium, IUPAP Centennial celebrations in Finland, and transfer of the account of the Finnish National Committee under the FPS banking

system. The Committee organised a scientific photography and image competition in honour of IUPAP's 100th Anniversary with a prize of €100. The winner was Anders Wallin at VTT Mikes.

The Vice-Chair attended the IUPAP Centennial Symposium at ICTP, Trieste, 11-13 July 2022 and the 31st IUPAP General Assembly at ICTP, Trieste, 14 July 2022.

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)

C5 Commission had meeting in 29th International Conference on Low Temperature Physics, 18.-24.8.2022 Sapporo, Japan.