

ACTIVITY REPORT 2020

Presented to EPS Council, 08 - 09 April 2021



European Physical Society

more than ideas

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INTRODUCTION FROM THE PRESIDENT

2020 has been a year like no other for most of us, marked by inaccessibility of labs and offices, a high work load due to teaching and other on line activities, struggles in combining taking care of children and working from home, missing your colleagues and the one-to-one meetings at conferences. However 2020 has also been a year, which has convinced not only us but also the general public of the importance of science and I am happy to see that many European governments have put important investments in research in their plans for recovery after the pandemic.

As I look back at the unprecedented challenges we faced, and continue to face, I am also immensely impressed and proud of the tenacity and resilience of the physics community. The EPS staff at the headquarters in Mulhouse under the watchful eye of David Lee is no exception to that and I am very grateful to them for keeping all the Society's activities going and their spirits up despite the lockdowns and worries.

In this report we look back on an unusual but also on a successful year for EPS, which has also seen new activities giving hopefully also impetus coming times. The first highlight is that EPS Young Minds has celebrated its 10th anniversary – a major milestone, and has now evolved from a project to a programme, which includes over 60 sections in 30 countries. Celebrations did not comprise a big leadership meeting and party in Barcelona as originally planned but an intense programme of Webinars and virtual workshops spanning a wide range of subjects from the fascination with physics to career development (for ex. “from PhD to CEO”) and assertiveness training, to tips on visualization of science and the celebration of women in physics. Most importantly the various Young Minds sections have shared events they organize with each other and thereby grown together as a community. Additionally Young Minds has continued to organize very successful career related sessions for young researchers at EPS sponsored conferences, this year

at the CMD2020GEFES conference of the Condensed Matter Divisions of EPS and of the Spanish Physical Society, which was held on line. I am convinced that these exchanges are here to stay, supported also by the lively engagement on social media of the Young Minds action committee and of the various sections. EPS can take pride in seeing that as never before the Young Minds programme lives up so fully to its mission of connecting young researchers all over Europe.

EPS not only cares about young researchers active in Europe but also about those from developing countries, who did their PhD in European labs and are now back in their home country, setting up their own groups there. I am happy to announce an important new initiative for these motivated young scientists: to make it easier for them to stay in their home country, but maintain ties to the international scientific community and have access to infrastructure not yet available at home, the new International Training and Research (INTR) programme was set up at the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste and managed in close partnership with the European Physical Society. The INTR programme offers these early career scientists the chance to return to the laboratory where they obtained their Ph.D. for yearly research visits of 2 months or more. Given the intimate familiarity with their former laboratories, these visits can be immediately productive, capitalizing on the previous investment in human resources by keeping the former student connected at the forefront of research while contributing to the body of scientific knowledge at the host institution. This valuable tool can help these talented young scientists avoid having to make the choice of leaving their home country in order to have a meaningful career in science. It truly hope that member societies and research institutions in Europe will decide to financially support the INTR programme and convince their ministries and national funding agencies to do the same.

This past year has also been a very active

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one for the EPS representation in Brussels. It also gives me much satisfaction to report that EPS has been successful – together with other learned societies and scientific organisations – in lobbying for more research funding for the next Framework Programme, FP9 or Horizon Europe. EPS now also issues a monthly newsletter from Brussels to inform the member societies on new developments at the EU level and signal opportunities for funding of education and research by the European Commission. Since Horizon Europe foresees important funding for Citizen Science, we decided to provide ideas on how to include Citizen Science in research in Physics during the 2021 Council Meeting and make that talk available on the EPS website afterwards.

A highlight of 2020 was the “train the trainers” workshop aimed at developing the advocacy skills of all interested EPS members. Delegates of 10 member societies, members of the Executive Committee and the EPS staff as well representatives of several Divisions were trained in how to organize (and give) workshops for teaching physicists how to talk to policy makers. They learnt how to plan a lobbying action from developing a strategy to preparing the meeting with a policy maker and actually holding it to how to manage the follow up in order to assure success. An essential part was communication training and practical exercises with case studies. The hope is that such training will harness the capabilities of physicists all over Europe to make their voice heard. We can no longer only rely on others to defend us but have to stand up for our interests ourselves. Another edition of the workshop will take place in May 2021, again on line, in order to give the other member societies also a possibility to have their delegates trained.

This last year also marked the definition the EPS Grand Challenges: Physics for Society in the Horizon 2050 project developed within the framework of the EPS Forum Physics and Society, and aimed at identifying the challenges that might be on the world's physics agenda to solve in 30 years from now. In no less than seven meetings held during 2020, the Editorial Board decided the structure and the topics to be covered as well as the potential authors. I am happy to say that nearly all of the authors approached accepted this task with enthusiasm and the first exciting articles are already being handed in, destined to the a broad audience

that is willing to explore a future shaped by science. We look forward to a great collection of thoughts of illuminated scientists to appear in the coming year and hopefully inspire many young people looking for perspectives in physics. Many thanks to the captain of this enterprise, Carlos Hidalgo, and to the Editorial board for all the time and thought they dedicated to this project.

To inspire young women to follow a successful career in physics, the beautiful EPS 2020 Calendar was published paying a tribute to “Inspiring (women) Physicists”. 1400 copies were distributed to all member societies, individual and associate members and institutions like UNESCO and the European Commission – many thanks to Gina Gunaratnam for the great job accomplished. The calendar was a huge success and features, next to famous female physicists from the past, also several of the laureates of the Emmy Noether Distinction, with which EPS honours each year two outstanding female figures in physics. The EPS Action Plans for Reducing the Gender Gap, drafted by Luc Bergé, were published in *Europhysics News* 51-3. After introducing the “Code of Conduct” that aims at prohibiting any act of discrimination and harassment, sexual or moral, during EPS-managed events, in 2020 we also had to deal with the first reports of undesired acts. I am pleased to report that also the help line dealing with these cases is now firmly implemented and successful in giving support when needed.

2020 was a very good year for EPL: the impact factor went up, a very successful Editorial Board meeting was organized on line in three shifts to permit participation of nearly all co-editors from all over the world, the number of commissioned articles increased considerably and are highly appreciated as seen from downloads and citations, the submission system was modernized with a transition to ScholarOne that was completed at the beginning of March 2021. In the name of EPS my heartfelt thanks to the Editor-in-Chief, Bart van Tiggelen, to the co-editors and to EPL publishing team for their dedication to the journal.

The Divisions and Groups suffered most from the pandemic-imposed conditions because about half of the conferences and workshops planned for 2020 had to be cancelled or postponed and in-person board meetings were impossible. On the bright sight I am happy to

report that the other half of the planned conferences that took place because switched to an on-line event, were highly popular and attracted record numbers of participants. Also some of the prizes and awards with which the Divisions and Groups recognize inspiring leaders in the various fields as well as especially talented early career researchers, could not be awarded this year but 14 prizes and distinctions were handed out this past year to 19 outstanding individuals. The Associate member campaign has continued even under these difficult circumstances and will continue in order to find sponsors for prizes by Divisions and Group that do not yet award any.

With the next Council Meeting my tenure comes to its end. It has been an exciting two years where much has been achieved – for what concerns my part in this I am greatly indebted to my predecessors on whose shoulders I could stand, and for the new initiatives to the EPS staff on whose unconditional support I could always count. A heartfelt “merci” to David Lee and all the colleagues of the EPS headquarters in Mulhouse and of the Brussels Office for continuing to relentlessly and efficiently assuring the smooth operation of all EPS activities. EPS and I personally, are immensely grateful to the Members of the Executive Committee for volunteering their free time to EPS activities and overseeing EPS enterprises and finances. My deep appreciation, also in the name of EPS to our Divisions and Groups, and to their boards and chairs in particular – you are the backbone of the society and I hope that you will continue your engagement that defines EPS undeterred also in the coming years. Finally I wish to express the great gratitude of EPS to the many volunteers, who even in these challenging times found the time and the energy to offer their talents, competences and creative thoughts to the physics community – even if you are far too many to thank personally, be assured that I am very highly appreciative of your efforts. To end, I want to express a special big “thank you” to my successor, Luc Bergé, for his great work as Executive Committee member and Chair of the EPS Equal Opportunities Committee first and as the Society's president-elect since May 2020. Luc, today I wish you the best of success for your ambitious programme for 2021-2023 and I assure you that you can count on my full support for the coming year of my vice-presidency. ■

Honorary Secretary's Report | **Ian Bearden and David Lee** |

EXECUTIVE COMMITTEE ACTIVITIES 2020

The EPS Executive Committee develops the EPS policy, discusses ongoing activities, financial matters, future plans, and puts in practice effective strategies to improve the visibility of the EPS.

The Executive Committee typically holds three regular meetings per year where its members meet face-to-face. The EPS President, elected by the Council, chairs the Executive Committee meetings.

Over the period 2020-2021, the EPS Executive Committee met once in person 7 times. The only in person meeting was on the 6-7 February 2020 in CERN, CH just a few weeks before the restrictions on travel and in person meetings were imposed in most European countries. The Executive Committee held 6 meetings by video conference from March 2020 through February 2021: 8 April 2020; 19 May 2020; 6 July 2020; 29 September 2020; 27 November; and 2 February 2021.

In 2020 the Executive Committee addressed the impact of COVID 19 pandemic on EPS activities. Notably, the staff at the secretariat would work mainly from home, in accordance with the guidelines from the French government. Where possible, conferences organised by the EPS and its Divisions and Groups would be organised as virtual conferences. Where this was not feasible or desirable, the conferences would

be cancelled or rescheduled. The EPS Young Minds Leadership scheduled in May 2020 meeting and the Forum Physics and Society meeting scheduled in October were cancelled. Other meetings originally foreseen to take in person were able to be organised as virtual workshops. This included notably the EPS Train the Trainers workshop on science advocacy (foreseen in-person May 2020 and held virtually in November 2020). The presentation of the EPS study on the Importance of Physics to the Economies of Europe was rescheduled as a virtual event in December 2020.

Enhancing the visibility and the influence of the EPS in the European instances is a priority item for the Executive Committee. The EPS Point of Presence in Brussels, E. Sanchez, was asked to develop high level contacts to EU officials and with other learned societies. Notably the EPS was active in writing to Members of the European Parliament to defend the research and innovation budget in the Horizon Europe programme.

The Executive Committee continued work on the framing document on Grand Challenges and on the many contributions of Physics to Society, written by physicists addressing people outside our community: policy makers, stakeholders, and general

public. The project is associated to the activity of the Forum Physics & Society (FPS). The purpose, structure and content of the document was defined and topics and authors were identified and approached.

2020 was also used to examine the procedures for the endorsement of EPS Prizes. A clearer more transparent policy is currently being drafted and will be communicated to all EPS Divisions and Groups when ready.

The Executive Committee approved modifications to the Statutes of the EPS Condensed Matter Division, and of the EPS High Energy Particle Physics Division.

The EPS Executive Committee approved the European Magnetism Society as an EPS Collaborating Society.

At its meetings, the Executive Committee invites representatives of national physical societies, representatives from other learned societies, policy makers, and Chairs of D/G.

The members of the Executive Committee play an important role in establishing and maintaining contacts to Member Societies and D/G. Every Executive Committee member is the direct contact person for a small number of Member Societies. The same principle has been introduced to establish privileged contacts with the D/G as shown in the table. ■

MEMBERS	DIVISION AND GROUP	MEMBER SOCIETY
Bearden, Ian	Physics Education Division, Energy Group	Denmark, Finland, Iceland, Norway, Sweden
Bergé, Luc	President	
Beek, Kees van der	Statistical and Non-linear Physics Division, Division of Physics in Life Sciences	Albania, Croatia, France, North Macedonia, Montenegro, Serbia, Slovenia
Caruso, Roberta	Quantum Electronics and Optics Division, Atomic Molecular and Optical Physics Division	Armenia, Georgia, Moldova
Fantz, Ursel	Plasma Physics Division, Computational Physics Group, History of Physics Group	Austria, Germany
Nappi, Eugenio	High Energy and Particle Physics Division, Accelerators Group	Czech Republic, Hungary, Italy, Slovakia
Palmer, Stuart	Technology and Innovation Group	UK
Peña, Teresa	Nuclear Physics Division	Portugal, Spain
Rabinovici, Eliezer	Physics for Development Group	Estonia, Israel, Latvia, Lithuania, Poland
Rudolf, Petra		
Sakellariadou, Mairi	Joint European Solar Physics Division, Gravitational Physics Division	Bulgaria, Cyprus, Greece, Romania, Turkey
Schopper, Andreas	Environmental Physics Division	Belgium, Liechtenstein, Luxembourg, the Netherlands, Switzerland
Zwignagel, Gertrud	Condensed Matter Division	Belarus, Russia, Ukraine

HIGHLIGHTS 2020

EPS BRUSSELS OFFICE - ANNUAL REPORT 2020

During 2020, the EPS Brussels office was closely following the budget negotiations of the upcoming Framework Programme “Horizon Europe” and carrying out a series of actions focused on transmitting, on behalf of the European Physical Society, to defend a bigger budget and more effective scheme. The actions included meetings with members of the European Parliament, answering to the consultations of the European Commission, publishing public statements and an editorial on EPL, as well as the initiative led by the EPS President, Professor Petra Rudolf, of sending 144 letters to all members of the European Parliament Committee on Industry, Research and Energy, and to the European Parliament, President David Sassoli, requesting to defend a larger budget for Horizon Europe reverting the downward spiral of the budget from the proposal of the EU Council on July 2020 of €80,9 Bn. On February 2021, the

European Parliament finally approved a Horizon Europe budget of €95.5 Bn, and we are glad to announce that this positive change was possible, among many others, of the actions carried out by the EPS.

Additionally, the EPS Brussels office actively contributed in the action from the scientific community demanding including the word “Research” in the denomination of the job title of Commissioner Mariya Gabriel (initially nominated as Commissioner for “Innovation and Youth”), resulting in a change to Commissioner for “Education, Research, Innovation and Youth”.

On the other hand, the EPS Brussels office has provided extensive support in the publication of the European Physical Society: “EPS Grand Challenges: Physics for Society at the Horizon 2050”. The purpose of the document is to explore the role of physics in addressing some of the biggest problems facing humankind, and to explore the social dimension of science as it relates

to the grand challenges in physics, including 73 distinguished authors.

Furthermore, the EPS Brussels office, upon request of the EPS President Petra Rudolf, took the lead organising the first edition of the Train the Trainers workshop on “Building Advocacy Capacity” in November 2020.

Last but not least, the EPS Brussels office actively collaborated within the Initiative for Science in Europe (ISE), an independent platform of European Learned Societies and Research Organisations operating within different disciplines and across sectors, of which the EPS is a member in three main lines: Horizon Europe, Open Science and Research Careers. In particular, the EPS Brussels office is chairing a dedicated working group which produced a Horizon Europe position paper, product of approximately 6 months of work, which was open for comments to the Member Societies and later circulated the last version. ■

YOUNG MINDS

Young Minds is an EPS programme launched in 2010 with the aim of bringing together students and early career researchers in Physics and foster the excellence among them by encouraging the creation of local groups called sections and ensuring the possibility to access an annual budget to carry out student-led activities

falling in three main categories: outreach, networking and professional development. Young Minds has now reached ten years of activity with 78 sections in 36 countries. Of those 78 sections, 47 are currently active, e.g. they have applied for funding or attended the leadership meeting in the previous two years.

9th Leadership Meeting

To celebrate the 10th anniversary of Young Minds, a meeting was planned in Caselle del Garda at the The Institute of Photonic Sciences (ICFO). Due to the Corona pandemic the planned 9th leadership meeting in 2020 had to be cancelled. Nonetheless, the Young Minds Action Committee organized

SPEAKER	CATEGORY	TITLE AND SHORT DESCRIPTION
Francesca Di Franco (Former member of the Naples section)	outreach; professional development	<i>How to capture the impact of science on people</i> Francesca di Franco shared experience and advice on how to create appealing visual footage during outreach events.
Dr. Gregory Quarles (CEO of Applied Energetics)	professional development	<i>Beyond the Scientific Method for Career Success</i> In the webinar Dr. Quarles shared insights and experiences on various aspects of professional life (work-life balance, decision making...) he has gained throughout his career.
Dr. Marina Corradini (Former member of the Naples section)	professional development	<i>How to capture the impact of science on people</i> In the webinar Dr. Corradini discussed, with a particular focus on gender-related issues, that minorities still face obstacles in both the scientific community and the society as a whole, and what can be done towards a more inclusive and non-discriminating environment.

a series of professional development and networking webinars for the sections and their members.

While the webinar with Francesca di Franco was only streamed on Facebook, the other two webinars were hosted via ZOOM, to facilitate interaction between the speaker and the audience, and additionally

streamed live. In total the webinars were attended by members from at least 17 different sections and a total audience of almost 3000 people was reached.

Moreover, interaction with the sections and general section feedback on the programme was ensured by the survey among current Young Minds members that built

the basis for the EPN contribution 51-5 mentioned previously.

While the Action Committee aims at hosting a physical leadership meeting in 2021, in consideration of the internal and external reach webinars provide it will additionally work towards integrating webinars in its regular portfolio. ■

THE EPS CALENDAR OF INSPIRING PHYSICISTS 2020

In 2019, The EPS Executive Committee accepted to support the project proposed by G. Gunaratnam at the EPS Secretariat of calendar of “Inspiring Physicists”. The project was carried out and the calendar was distributed to our members in Europe and worldwide.

The project

The purpose of this calendar was to inspire the young generations in their choice of studies by showing the variety of research fields in physics and through living and committed scientists.

In the calendar, following physicists are presented:

- laureates of the EPS Emmy Noether Distinction;
- “inspiring physicists” presented in interviews started in 2015 by Luccia Di Ciaccio (former chair of the EPS Equal Opportunities Committee), continued since then and published on the EPS website;
- a few famous female figures.

The calendar 2020

Every month, a new physicist was briefly described, with her portrait and a short quote of what inspired her to study physics or to work in a specific field.

The first version put forward women only, because they are often under-represented in various areas of physics (scientific school books, history books, conference speakers, scientific reference).

Print and distribution

The calendar was printed in 1,500 copies and distributed at the end of 2019 to:

- EPS Member Societies
- EPS Associate Members
- EPS Individual Members, category “teachers”

- several secondary schools and training centres in France
- UNESCO, European Commission, EPWS, La Nef des Sciences, etc.
- Less than 100 copies are left.
-

Feedback

Due to the SARS-CoV-2 crisis, the development of the actions started in schools or conferences was suddenly reduced and the follow-up made less easy. However, very positive feedback came from our members before the first lockdowns in 2020:

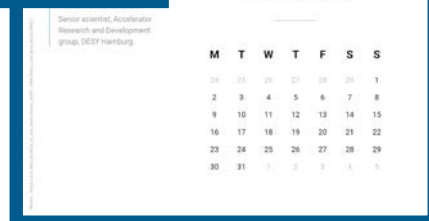
- distribution to physics teachers at conferences
- use as educational medium to raise interest in sciences in classrooms, training schools and in an association promoting science (La Nef des Sciences)
- displayed in an exhibition of famous women.

Thanks to the help of enthusiastic teachers and scientists, this calendar inspired young pupils to study physics and gave them the taste of science in 2020 and beyond. ■

▼ The calendar cover with the names of the physicists presented inside



► Inside pages



PHYSICS FOR SOCIETY: GRAND CHALLENGES IN THE HORIZON 2050 BY CARLOS HIDALGO

Over the last decades, the European Physical Society [EPS] has been promoting and examining some of the biggest problems humankind faces right now and the role physics to address them. But what about the big challenges in physics that are brewing for the future?. In the Horizon 2050, what might be on the world's physics agenda to solve?. It's difficult to predict, but we can get clues from how current trends in science and technology may play out where physics

has a key role to play. This is the target of the EPS Grand Challenges: Physics for Society in the Horizon 2050 project, exploring our ability to imagine and shape the future by making use of the scientific method. The project is designed to address the social dimension of science and the grand challenges in physics with two pillars: physics as global human enterprise for understanding nature and physics developments to tackling major issues affecting the lives of citizens.

Seven Editorial Board meetings were held during 2020. The structure and topics to be covered as well as potential authors were discussed. A significant fraction of contributed authors (above 90 %) have already accepted the invitation of chapter coordinators and have received the formal EPS invitation. Concerning national and gender balance, authors come from 19 different countries with about 25% of women scientists.

The final structure and chapter coordinators are as follows:

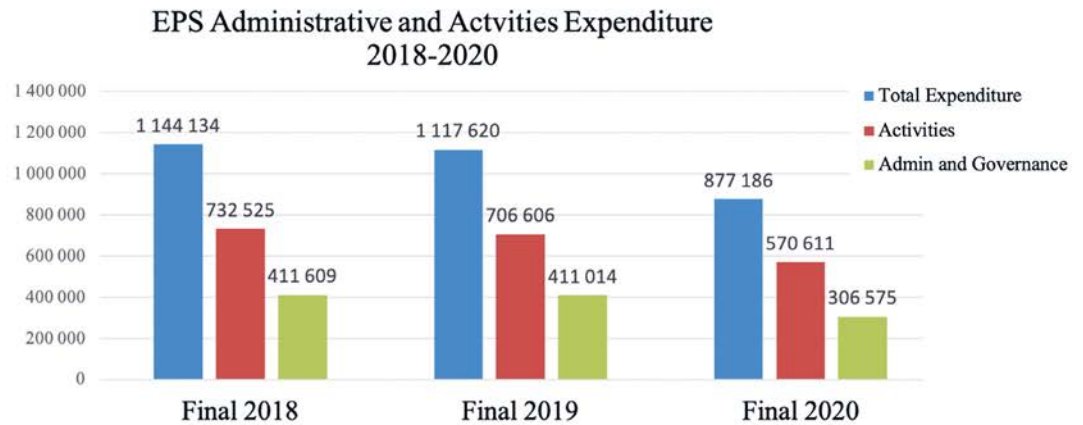
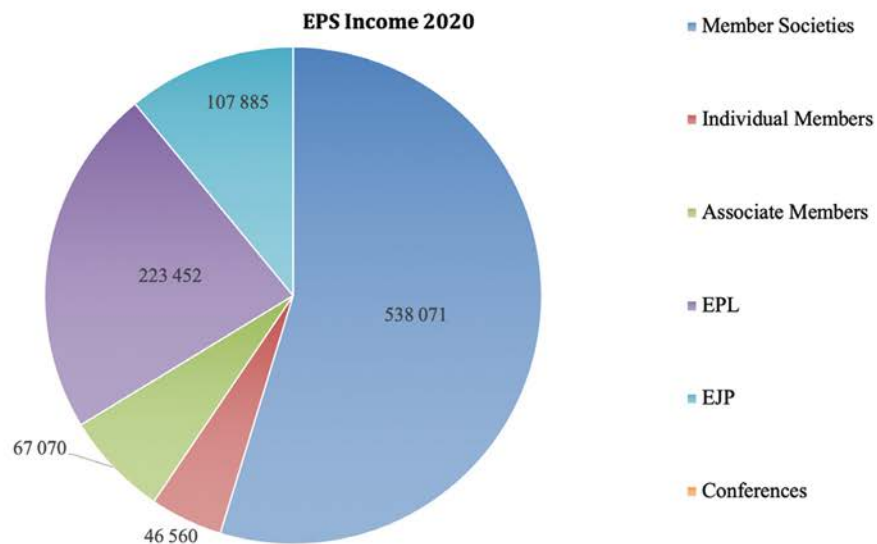
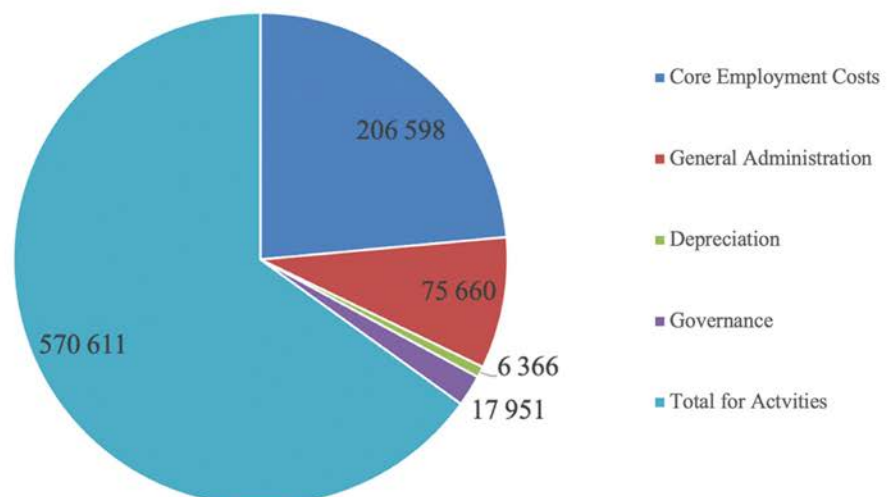
	THEME 1: PHYSICS AS GLOBAL HUMAN ENTERPRISE FOR UNDERSTANDING NATURE	COORDINATORS
Chapter 1.1. PHYSICS BRIDGING THE INFINITIES	1.1.1. Particle physics: physics beyond the Standard Model 1.1.2. Nuclear and plasma physics: origin of matter in the visible universe 1.1.3. Quantum gravity: an unfinished revolution 1.1.4. What is the universe made of: searching for dark energy & matter 1.1.5. A gravitational universe: black holes and gravitation waves. 1.1.6. Stars, the Sun and planetary systems as physics laboratories 1.1.7. Physics of Earth and planetary interiors	Claudia-Elisabeth WULZ [High Energy & Particle Physics Division] Mairi SAKELLARIADOU [Gravitational Physics Division]
Chapter 1.2. MATTER AND WAVES	1.2.1. Quantum many body systems and emerging phenomena 1.2.2. The search for new materials 1.2.3. Strongly interacting quantum systems in condensed matter physics 1.2.4. Topological states and novel quantum states 1.2.5. Manipulating photons and atoms: photonics and nanophysics 1.2.6. Extreme light 1.2.7. Systems with numerous degrees of freedom	Kees VAN DER BEEK [Condensed Matter Division]
Chapter 1.3. PHYSICS FOR UNDERSTANDING LIFE	1.3.1. Searching for life in the universe: What is our place in the universe? 1.3.2. Artificial intelligence: What is the nature of human mind? 1.3.3. Artificial life: sustainable self-replicating systems 1.3.4. Where physics meets biology: Is there new Physics in living matter? 1.3.5. The emergence of life: the Sun-Earth connection	Felix RITORT [Division of Physics in Life Sciences] Bart VAN TIGGELEN [EPL Editor]
	THEME 2: PHYSICS DEVELOPMENTS TO TACKLING MAJOR ISSUES DIRECTLY AFFECTING THE LIVES OF CITIZENS	COORDINATORS
Chapter 2.1. PHYSICS FOR HEALTH	2.1.1. Accelerators for health 2.1.2. Bionics and robotics 2.1.3. Light for health 2.1.4. Research against coronavirus and pandemics 2.1.5. Further diagnostics and therapies	Giulio CERULLO [Quantum Electronics and Optics Division] Ralph ASSMANN [Accelerator Group] Felix RITORT [Division of Physics in Life Sciences]
Chapter 2.2. PHYSICS FOR ENVIRONMENT AND SUSTAINABLE DEVELOPMENT	2.2.1. Physics of earth and climate 2.2.2. Physics fields with relevance for energy technologies 2.2.3. Green cities and transport 2.2.4. Environmental safety 2.2.5. Understanding and predicting space weather	Luisa CIFARELLI [EPS member at large] Carlos HIDALGO [EPS Forum Physics & Society]
Chapter 2.3. PHYSICS FOR SECURE AND EFFICIENT SOCIETIES	2.3.1. Second Quantum revolution: quantum computing and cyber security 2.3.2. Information and communication technologies 2.3.3. Bio-inspired technologies 2.3.4. Sensors and applications 2.3.5. Large-scale complex socio-technical systems and their interactions 2.3.6. Artificial Intelligence and data science	Felicia BARBATO [Technology and Innovation Group] Christian BECK [Statistical and nonlinear Physics Division]
Chapter 2.4 SCIENCE FOR SOCIETY: EDUCATION, RESEARCH, ETHICS AND PUBLIC ENGAGEMENT	2.4.1 Education and research in an interdisciplinary environment 2.4.2 Open communication and responsible citizens 2.4.3 Science and ethics 2.4.4 Limits of science 2.4.5 Science with and for the citizens	Christophe ROSSEL [EPS member at large] Luc van DYCK [EPS communication]

The EPS Forum / Berlin 2020 was postponed due to the pandemia while keeping its integration on DPG 175 + 1 year celebration to be tentatively held in late 2021. ■

| EPS Honorary Treasurer's Report | **Stuart Palmer** |**FINANCIAL REPORT 2020**

The overall financial performance achieved during 2020 was less in many respects than was budgeted at the start of the year. Generally, the European Physical Society organised activities on-line, which lead to substantial savings in travel expenses. The total income in 2020 was 1,041,029 of which, 63% from Members, 32% from publication activities and 5% from other activities. The expenditure for 2020 was Euro 877,186 with 35% for administration and governance, and 65% for activities. The out-turn for the year was an excess of Euro 163,843.

Income in 2020 was 10% less than budgeted. Notably, there was no income from Conference Services to report, as all events were organised on-line and no registration fees were collected. It is worthy of note however that it was not necessary to use any of the carry-forward from 2019 to balance the budget in 2020. Therefore, the Euro 139,972 that was initially foreseen to balance the 2020 budget will be placed into general EPS reserves. The EPS also received Euro 57,991 in aid from the French government in the form of a rebate of French social security charges. Expenditure was 24% less than budgeted, with a decrease in all expenses.

Figure 1. Income and Expenditure 2018-2020 (in Euro)**Figure 2. Income 2020 (in Euro)****Figure 3: Expenditure 2020**

SECRETARIAT

The Secretariat of the European Physical Society is headquartered on the campus of the Université de Haute Alsace, in Mulhouse, France. Staffing fluctuated throughout the year, linked mainly to conference activity and some natural staff turnover. At the end of 2020, the EPS employed 9.9 FTE, in 3 main areas: Core Secretariat (4.9); Conference Services (2), and the EPL Editorial Office (3). In addition, the UHA has made a full time secretary available to the EPS. Unfortunately, this will be the last year that the EPS will benefit from support from the UHA, as Sylvie Loskill will retire, and the UHA will not replace her at the EPS.

All EPS staff began working from home in March 2020, as a result of the confinement measures implemented in France to contain the spread of the coronavirus COVID 19. EPS staff began returning to work at the EPS Secretariat in September

2020. However, the French government again confined the whole of France at the end of October 2020. Since then, EPS staff have been working from home.

The Core Secretariat provides administrative services to the EPS, including accounting, graphic design, and information technology. Among the main tasks are the preparation of Europhysics News and e-EPS, website maintenance and design, financial control, invoicing *etc.* The Secretariat also supports Divisions and Groups, and the activities of EPS Committees, and the Executive Committee. European relations, relations with other societies, communications, outreach, policy monitoring and EPS involvement in EU projects are also part of activities of the Core Secretariat.

The Conference Services department provides a full range of services for conferences organised by EPS Divisions and

Groups. These include committee management, web site design and maintenance, communication, onsite logistics, online paper submission and maintenance, budgeting, *etc.* Much work was undertaken to develop the capacity at the Secretariat to organize virtual Meetings. In 2020, the EPS Secretariat undertook the organization of the 9th Europhoton as an entirely virtual event.

EPS headquarters in Mulhouse also houses the EPL editorial office: the staff editor, as well as 2 editorial assistants. In 2020, the EPS Editorial Office handled 1,142 manuscripts. EPL had 463,000 downloads altogether in 2020, among which 48,000 to content in 2020. This implies that - on average - a manuscript published in 2020 was downloaded 151 times, a satisfactory number that compares very well to previous years. ■

▼ EPS staff 2020 - Top: F. Burr, S. Loskill, D. Lee, G. Gunaratnam - Middle: E. Sánchez, X. de Araujo, P. Helfenstein, A. Ouarab - Bottom: S. Fila, O. Fornari, K. Desse, O. Alaiwan



REPORTS BY EPS ACTION COMMITTEES

HISTORIC SITES

Chair: Karl Grandin

During the special conditions prevailing during most of the year, only one historic site was inaugurated in 2020 compared to the ten inaugurations the previous year. Several planned inaugurations have been postponed due to the pandemic, and organisers hope to be able to organise the inaugurations once the situation permits. One inauguration that managed to take though was of the École de Physique des Houches. There the French mathematical physicist, Cécile DeWitt-Morette, founded the Les Houches School of Physics in 1951. At the scenic Les Houches site many aspiring physicists have been taught by Nobel Laureates and Fields medallists and the successful school of physics there has provided an example to many similar endeavours in other places that have followed. Les Houches was inaugurated on October 5th 2020 in the presence of EPS president elect, Luc Bergé, and EPS HS committee member Alain Fontaine among others.

Until December 2020, 92 proposals of Historic Sites have been received, either spontaneous or channelled through National Member Societies. Proposals can be made at any time from the EPS web site (link below). Of these proposals, 55 EPS Historic Sites have been inaugurated in 21 different countries at the end of 2020.

1. The Goldfish Fountain of the Physics Institute of Panisperna Street – *Centro Fermi*, Rome, Italy, 20 April 2012
2. Laboratory “Les Cosmiques”, Col du Midi, Chamonix, France, 23 July 2012
3. Hoza 69, Warsaw, Poland, 10 January 2013
4. The Study of Bruno Pontecorvo – JINR, Dubna, Russia, 22 February 2013
5. The Hill of Arcetri, Florence, Italy, 17 May 2013
6. The Villa Griffone in Pontecchio Marconi, Bologna, Italy, 26 May 2013
7. The Observatory of Tycho Brahe, Hven Island, Landskrona, Sweden, 11 September 2013
8. The LAL-LURE Accelerator Complex,

Orsay, Paris, France, 13 September 2013

9. PTB, Formerly PTR, The National Metrology Institute, Berlin, Germany, 8 October 2013
10. The Cathedral, Kamien Pomorski, Poland, 11 October 2013
11. The Neutrino Experiment at MTA Atomki, Debrecen, Hungary, 25 October 2013
12. The Niels Bohr Institute, Copenhagen, Denmark, 3 December 2013
13. The AdA Storage Ring at the INFN Frascati National Laboratory, Frascati, Rome, Italy, 5 December 2013
14. The European Birthplace of the Atomic Timekeeping – NPL, Teddington, UK, 31 January 2014
15. The Blackett Laboratory, London, UK, 30 April 2014
16. The Fabra Observatory, Barcelona, Spain, 9 May 2014
17. The Study of Georgi Nadjakov, Sofia, Bulgaria, 23 May 2014
18. The Synchro-Cyclotron, SC – CERN, Geneva, Switzerland, 19 June 2014
19. The Kamerlingh Onnes Laboratory and Lorentz Institute, Leiden, The Netherlands, 9 February 2015
20. The Fisor Lutheran Secondary School, Budapest, Hungary, 23 April 2015
21. The Ludwig Maximilian University, Munich, Germany, 6 May 2015
22. The Students Residence (*Residencia de Estudiantes*), Madrid, Spain, 13 May 2015

23. The Mount Vesuvius Observatory, Hercolaneum, Naples, Italy, 23 May 2015

24. The Institute for Radium Research, Vienna, Austria, 28 May 2015
25. The Einstein House, Bern, Switzerland, as **Joint APS-EPS Historic Site**, 14 September 2015
26. The Hotel Metropole, Brussels, Belgium, 24 October 2015
27. The Ernst Mach Physics Institute, Prague, Czech Republic, 18 February 2016
28. The Cabinet of Physics of the University of Coimbra, Coimbra, Portugal, 11 March 2016
29. The Former Physical Institute of the University of Würzburg, Würzburg, Germany, 7 June 2016
30. The “Piersanti Mattarella Tower of Thought” of the Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Italy, 21 August 2016
31. The Uddmanska House, Kungälv, Sweden, 29 October 2016
32. The Institute for Advanced Study, Princeton, NJ, USA, as **Joint APS-EPS Historic Site**, 9 November 2016
33. “Les Bastions” of the University of Geneva, Geneva, Switzerland, 29 March 2017
34. H.H. Wills Physics Laboratory (Royal Fort) of the University of Bristol, Bristol, UK, 13 September 2017
35. IBM Research Laboratory, Rüschlikon, Zürich, Switzerland, 26 September 2017
36. The Philips NatLab, Eindhoven, The Netherlands, 5 October 2017



▲ Left to right: A. Fontaine, L. Bergé, G. Wormser, B. Van Tiggelen, C. Salomon - Image credit: François Henry/Les Houches.

37. The Curie Laboratory of the “Institut du Radium”, Paris, France, 7 November 2017
38. Magurele Physics Campus, Magurele, Romania, 15 November 2017
39. Institute of Spectroscopy, ISAN, Troitsk, Russia, 20 June 2018
40. Dunsink Observatory, Dublin, Ireland, 23 June 2018
41. Halde Observatory, Alta, Norway, 26 August 2018
42. Laboratories of Kirchhoff and Bunsen, Heidelberg, Germany, 1 October 2018
43. Old Physics Building of the Eötvös Loránd University, Budapest, Hungary, 12 October 2018
44. Laboratorium Bergara, Basque Country, Spain, 20 October 2018
45. Jungfrauoch Research Station, Switzerland, 8 February 2019
46. Institute of Physics of Archirafi Street, Palermo, Italy, 18 February 2019
47. Atominstytut, TU, Vienna, Austria, 21–22 May 2019
48. Holy Spirit College, Leuven, Belgium, 23 May 2019
49. The Former Physics Institute, Frankfurt am Main, 4 September 2019
50. Mendeleev’s Museum-Archive, St. Petersburg, Russia, 12 September 2019
51. Birr Castle, Demesne, Ireland, 20 September 2019
52. Institute for High Voltage Engineering, RWTH, Aachen, Germany, 30 September 2019
53. The Academy of Sciences of the Bologna Institute, Italy, 7 November 2019
54. The Physics Department at the University of Dundee, UK, 2 December 2019
55. Les Houches School of Physics, Les Houches, France, 5 October 2020

Cf. https://www.eps.org/general/custom.asp?page=distinction_sites

The Historic Sites Committee examines the proposals typically three times per year. Four more sites have already been approved and await inaugurations in 2021, when the pandemic situation allows.

Members of the EPS HS Committee during 2020 were: Karl Grandin (Chair), Luisa Cifarelli, Goran Djordjevic, Ursel Fantz, Alain Fontaine and Jim Hough. Observers: Alan Chodos (APS) & representing EPS Young Minds Araceli Vengas Gomez (1st half 2020)

& Hripsime Mkrtchyan (2nd half of 2020). The chair and the communication coordinator at EPS Mulhouse, Gina Gunaratnam, have been working on establishing a database system for the nominations.

For each inauguration event, a plaque is unveiled in the presence of the local representatives and authorities. The EPS President or her representative (Past President or Member of the EPS Executive Committee or Member of the EPS HS Committee) attends the ceremony. For each ceremony, a news is published right away in the electronic newsletter e-EPS and on the EPS web site, and an extended article is published afterwards in EPN.

YOUNG MINDS

Chair: Richard Zeltner



Young Minds is an EPS programme launched in 2010 with the aim of bringing together students and early career researchers in Physics and foster the excellence among them by encouraging the creation of local groups called sections and ensuring the possibility to access an annual budget to carry out student-led activities falling in three main categories: outreach, networking and professional development. Young Minds has now reached ten years of activity with 78 sections in 36 countries. Of those 78 sections, 47 are currently active, e.g. they have applied for funding or attended the leadership meeting in the previous two years.

Project Management and Action Committee

In 2020 the full Young Minds Action Committee comprised EPS President Petra Rudolf, EPS Secretary General David Lee, EPS Executive Committee member Sylvie Jacquemot (until May), Roberta Caruso (first as chair and then as EPS Executive Committee member from May onwards), EPS Conference manager Ophélie Fornari,

Richard Zeltner (chair, Germany), Daryna Pesina (Sweden), Tanausú Hernández Yanes (Poland), Mattia Ostinato (Spain), Hripsime Mkrtchyan (Armenia), Carmen Martin (Spain) and Imran Khan (Germany, will leave in Q1 2021).

Following the leave of the long-standing committee members R. Caruso, A. Venegas Gomez and Giorgio Nocerino in 2020 a task is and will be to ensure continuity in the programme management in the following years. The vacancies in the committee that were opened by said leaves were filled up by Mattia Ostinato and Carmen Martin. In anticipation of the leave of Imran Khan the committee considers a call for applications early in 2021.

Due to the Corona pandemic there have been no physical meetings in the framework of EPS YM in 2020. The full Action Committee came together for on-line meetings in May and November.

To reach out to young professionals outside the existing Young Minds network more efficiently the Action Committee established, in cooperation and with the support of the EPS staff, a page on LinkedIn. This additional presence is anticipated to help in disseminating the awareness on YM in a community which has not been targeted specifically yet.

Section Development

In 2020 the programme established 5 new sections, 2 of them in countries that were not represented yet (Georgia, Slovakia), for a total of 78 sections in 36 countries.

Each section is entitled to apply for a maximum of 1000€ for funding to support activities falling in at least one of the three categories: outreach, networking and professional development. There are two deadlines per year – January 15th and July 15th.

Starting from January 2019, the Action Committee introduced the Young Minds Conference Award (YMCA), designed as a specific support for conferences or sessions organized by Young Minds sections. YM Conference Awards have been introduced to guarantee high visibility to EPS YM during large events involving the scientific community. The applicants are requested to guarantee a timeslot to present the YM programme during the event, or alternatively to distribute YM promo material.

2020 ACTIVITY GRANTS	REQUESTS	APPROVED WITH FULL AMOUNT	APPROVED WITH REDUCED AMOUNT	TOTAL AMOUNT REQUESTED (€)	TOTAL AMOUNT GRANTED (€)
January 15 th deadline	51	36 (71 %)	15 (29 %)	15580	13590
January 15 th deadline	25	19 (76 %)	6 (24 %)	9537	7378,2

2020 YMCA	REQUEST	APPROVED WITH FULL AMOUNT	APPROVED WITH REDUCED AMOUNT	TOTAL AMOUNT REQUESTED (€)	TOTAL AMOUNT GRANTED (€)
January 15 th deadline	2	2 (100 %)	0	2000	2000
April 15 th deadline	0	0	0	0	0
January 15 th deadline	1	1 (100%)	0	1000	1000
October 15 th deadline	0	0	0	0	0

Each section can apply for a maximum of 1000€ for the YM Conference Award and up to 1000€ for the regular Activity Grant. The tables below summarize the number of grant requests, the number of grants approved, the total amount of funding requested, and the total amount of funding granted for each deadline.

Sections are assisted during the grant submission process, and especially for the YM Conference Award the Action Committee provides feedback and the possibility to resubmit the grant twice, in a sort of peer review process that helps both parties.

Compared to 2019 there have been fewer activity grant applications in general (76 in 2020 vs. 84 in 2019), in particular for the application round in July (25 in 2020 vs. 36 in 2019). Moreover, 2020 has seen a large

reduction in the number YMCA applications (3 in 2020 vs. 12 in 2019). Both effects may be attributed to the restrictions brought by the Corona pandemic, which prevented sections from carrying out granted activities as planned in the first half of the year, and also created a large uncertainty for the planning of future events in the second half of 2020. In consideration of the lockdown and the restrictions in many European countries, sections were allowed to modify the scope of granted activities, to enable them to stay active with as less friction as possible.

Young Minds and EPS

The organization of Young Minds sessions during EPS sponsored and recognized conferences started in 2018 to increase the synergy between Young Minds and

other EPS Divisions and Groups. Despite the restrictions a very successful session was organized at the joint conference of the Condensed Matter Divisions of the Spanish Royal Physics Society (RSEF-GEFES) and of the European Physical Society (EPS-CMD) - CMD2020GEFES, held on-line from August 31st to September 4th, 2020. Two Young Minds sessions were organized, one about careers inside (still visible on <https://www.youtube.com/watch?v=Xlp6RruUjqc&t=72s>) and one centred on careers outside academia (still visible on <https://www.youtube.com/watch?v=VNuI3AbVE-M&t=100s>).

A new YM section in Europhysics News (EPN) has been established in 2020. Among the five articles published so far, the contributions to EPN 51-5 and 51-4 are particular noteworthy: in those the results of surveys were presented and discussed, that were carried out to analyze the impact of the programme on both alumni and current members, revealing an overwhelmingly positive effect.

Young Minds continued to regularly publish on e-EPS, the online magazine of EPS. In 2020 Carmen Martin followed Daryna Pesina as the contact person within the Action Committee for the e-EPS.

The representative of Young Minds sitting in the Historic Sites Committee and in the Equal Opportunity Committee has changed. Currently, Hripsime Mkrtchyan sits in the former and Daryna Pesina in the latter.

A professional development webinar series on developing assertiveness provided and organized by the European Physical Society for YM members has been attended by 35 programme members representing 28 sections.



◀ Group picture of the participants to the last Leadership Meeting in Erlangen, May 2019. Courtesy of MPL.

CONFERENCE COMMITTEE

Chair: Marian Reiffers

The Conference Committee after the last EPS Council (29.05.2020) consisted of the following members: Christian Beck, Ophélie Fornari (secretary) and Marian Reiffers (chair). Due to COVID the commission was provisionally in this composition. Another very important impact of COVID was that most scientific conferences in the world were either postponed, delayed or cancelled; a small part was organized in an on-line format. There was also a way that some conferences were performed in virtual form (on-line). These facts substantially changed the system of organization of conferences. Therefore, the original idea was not fulfilled. Chairman intended to meet with the EPS secretariat to discuss system of applications but due to well-known restrictions the travel was not performed.

Conferences, Workshops, and Summer Schools are essential elements in the personal communication of physics, the career development of physicists, the promotion of physics towards students and young scientists, and for the reputation and credibility of the EPS and physics. The role of the Conference Committee is to advise the EPS Executive Committee on the development of all activities and programs in the area of such scientific events, and to administer EPS Conference grants.

However, due to the changed situation in the world there were no applications after March 2020. We hope that the situation will become better and then we shall be able to continue with previous rules.

Finally, the committee met on-line on 12.01.2021 and proposed its enlargement in order to better cover specific subjects in physics. The committee would then have the following composition:

Marian Reiffers (chair), Christian Beck, Ophélie Fornari, Alice Valkárová, Els de Wolf, Teresa Pena.

Due to the situation with COVID there were no applications to the committee during the last year. Moreover, the IM Travel grants which are handled by the Conference secretariat had no application. Therefore, it

is time to think about a new EPS Conference policy, which should be discussed together with the ExCOM. Some preparation was already done by David Lee.

We propose to abolish the category of Invited Speakers Grant and instead of it to support more Early Career Scientists and Women Scientists. We have discussed also how to treat small conferences and workshops, if they are organized/approved by Divisions and Groups. Moreover, the committee will look for new possibilities of support in the time of COVID restrictions.

DISTINCTIONS AND AWARD COMMITTEE

Chair: Jo Hermans,

Members: Angela Bracco,

Elisabeth Rachlew, Marian Reiffers

It was concluded that the process for awarding Prizes and Distinctions lacks many important details to allow the D&A Committee to make an informed decision and to allow Gina Gunaratnam to provide adequate publicity. In order to professionalize the procedure, a Zoom meeting was held on October 19, 2020. Participants were David Lee, G. Gunaratnam, G. Zwignagl, E. Rabinovici, R. Caruso and J. Hermans. In response to this meeting R. Caruso, E. Rabinovici, and G. Zwignagl drafted a form with the minimum information necessary for prizes to be endorsed.

The following distinctions and prizes were awarded during the year 2020:

- The **EPS Alfvén Prize 2020** was awarded to **Annick Pouquet**, Laboratory for Atmospheric and Space Physics, University of Colorado and National Center for Atmospheric Research, Boulder, Colorado, USA, “*For fundamental contributions to quantifying energy transfer in magneto-fluid turbulence*”.
- The **Outreach Prize** of the EPS High Energy Physics Division was awarded to **Rob Appleby, Chris Edmonds and Robyn Watson** “*For the Tactile Collider Project that brings particle physics to blind and visually impaired schoolchildren through touch and sound.*”

AWARDED IN 2019

- The **ESPD Senior Prize 2020** of the European Solar Physics Division (ESPD) has been awarded to **Eric Priest** (University of St Andrews, UK) “*for long-standing leadership via mentoring, supervising and field-defining textbooks and for fundamental contributions in key topics of solar magnetohydrodynamics, particularly magnetic reconnection in the solar atmosphere and solar coronal heating.*”
- The **Rolf Widerøe Prize** of the EPS Accelerator Group, for outstanding work in the accelerator field, has been awarded to **Lucio Rossi**, CERN, “*for his pioneering role in the development of superconducting magnet technology for accelerators and experiments, its application to complex projects in High Energy Physics including strongly driving industrial capability, and for his tireless effort in promoting the field of accelerator science and technology.*”
- The **Gersch Budker Prize** of the EPS Accelerator Group, for a recent significant, original contribution to the accelerator field, is awarded to **Hideaki Hotchi**, J-PARC. He receives the prize “*for his achievements in the commissioning of the J-PARC Rapid Cycling Synchrotron, with sustained 1 MW operation at unprecedented low levels of beam loss made possible by his exceptional understanding of complex beam dynamics processes, thereby laying the foundations for future high power proton synchrotrons worldwide.*”
- The **Frank Sacherer Prize** of the EPS Accelerator Group, for an individual in the early part of his or her career was awarded to **Johannes Steinmann**, ANL, “*for his significant contribution to the development and demonstration of ultra-fast accelerator instrumentation using THz technology, having the potential for major impact on the field of electron bunch-by-bunch diagnostics.*”
- The **2020 EPS Gero Thomas Medal** was awarded to **Jozef Devreese**, emeritus professor of the University of Antwerp (Belgium), in recognition of his scientific achievements and of his great services to the European Condensed Matter Physics community as well as to EPS.

- The **2020 EPS Edison Volta Prize** was awarded to **Dieter Weiss** (University of Regensburg, Germany) *“for discovering a most spectacular new quantum phenomenon, the ‘Weiss Oscillations’*; **Jurgen Smet** (Max Planck Institute for Solid State Research MPI-FKF in Stuttgart, Germany) *“for the demonstration – in cooperation with Dieter Weiss – of the so-called Hofstadter butterfly and the correctness of the Composite Fermion concept, a new quasiparticle consisting of a combination of an electron and two flux quanta, as well as for the exploration of the special properties of composite fermions”*; and to **Klaus Ensslin** (Laboratory for Solid State Physics, ETH Zürich, Switzerland) *“for his discoveries connected with nonequilibrium phenomena in quantum dots including the emission of microwave radiation from double quantum dots and the time resolved tunneling dynamics in the occupation of biased quantum dots”*.
- The Summer **2020 EPS Emmy Noether Distinction** was awarded to **Hatice Altug**, Institute for Bioengineering, École Polytechnique Fédérale de Lausanne, Switzerland, *“for her seminal contributions to light-matter interaction at the nanoscale, manipulation of light on-chip and application of nanophotonics in biology, and her inspiring role for the next generation of researchers and women”*.
- (Pending confirmation by the EPS Executive Committee) The **Winter 2020 Emmy Noether Distinction** was awarded to **Maria García Parajo**, ICFO / Institute of Photonic Sciences, Barcelona, Spain, *“for her outstanding contributions to nano-biophysics and to numerous programs to support women in physics”*.
- The **Lise Meitner-award 2020** was awarded to **Klaus Blaum**, Björn Jonson and Piet Van Duppen *“for their development and application of on-line instrumentation and techniques, for their precise and systematic investigation of properties of nuclei far from stability, and for shaping the scientific program at the on-line isotope separator facility ISOLDE, CERN”*.
- The **ESPD Early Career Researcher Prize 2020** of the European Solar Physics Division was awarded to **Victor Réville**, IRAP,

France *“for fundamental contributions to creating self-consistent multi-dimensional numerical models of coronal heating and solar wind acceleration via wave turbulence.”*

- The **ESPD PhD Thesis Prize 2020** of the European Solar Physics Division was awarded to **Stefan Hofmeister** (PhD carried at Institute of Physics, University of Graz, Austria) *“for outstanding observational analysis of solar coronal holes, their magnetic fine structure and the associated high-speed solar wind streams.”*
- The **EPS-CMD Europhysics Prize 2020 of the Condensed Matter Division** for recognition of a prominent and well-identifiable discovery, breakthrough, or contribution to condensed matter physics was awarded to **Jörg Wrachtrup**, University of Stuttgart, Germany, *“for his pioneering studies on quantum coherence in solid-state systems, and their applications for sensing, and, in particular, for major breakthroughs in the study of the optical and spin properties of nitrogen vacancy centres in diamond”*
- The **2020 EPS Liquid Matter Prize** of the Condensed Matter Division for outstanding achievements in the fields of Physics of the Liquid State, Soft Condensed Matter Physics, or Granular Physics, was awarded to **Daan Frenkel**, University of Cambridge, UK
- The **2020 Olli V. Lounasma Memorial Prize** of the Condensed Matter Division was awarded to **Seamus Davis**, University College Cork and Oxford University *“for his pioneering investigations and applications of exquisite scanning probe techniques for visualization of electronic quantum matter at the atomic scale.”*

EQUAL OPPORTUNITIES COMMITTEE

Chair: K. van der Beek

On the EPS Equal Opportunities Committee

The mission of the EPS Equal Opportunities Committee (EOC) is to promote and to encourage diversity and equal access of all physicists to career and employment opportunities, professional resources in the

fields of physics and physics education, regardless of gender, ethnicity, or nationality. The EOC works for fair and equal treatment of all physicists in their professional environment, including professional networks, publishing, and conferences. It combats predatory behaviour based on gender, ethnicity, or nationality.

A major part of the EOC's activities focuses on ensuring equal opportunities for women physicists. For this, the EOC monitors participation in EPS and other events such as conferences by gender (within the scope of the Gender Fairness project). It defends, at the very least, a representative participation of women physicists on Boards and committees such as those of EPS D&G, collaborating societies, conference committees, and other instances. The EOC organises and participates in events designed to promote awareness of the gender gap and the need for proactive measures to promote equal opportunities. It also publishes papers in EPS media and elsewhere in order to promote such awareness. Where possible, the EOC participates in surveys designed to measure the gender gap.

The EOC's mission cannot, however, be limited to the gender issue. It must also include the promotion of physics, physics education, and physics careers among members of underrepresented ethnic descent or nationality.

Composition of the EPS EOC

The EPS EOC consists of 7 members. They are:

Martine Bosman, IFAE, Barcelona, Spain, EPS HEPP Division

Nadia Martucciello, CNR Spin, Italy, EPS CMD

Daryna Pesina, O.Ya. Usikov Institute for Radio Physics and Electronics, Ukraine, EPS Young Minds

Ana Proykova, University of Sofia, Bulgaria, EPS NP

Elisabeth Rachlew, Uppsala university, Sweden, EPS AMOPD

Els de Wolf, NIKHEF Amsterdam, the Netherlands, EPS HEPP Division, EPN Editor

Kees van der Beek, CNRS, France, EPD CMD, EPS Executive Committee

After the election of Luc Bergé as EPS president-elect in May 2020, and the election of Kees van der Beek to the EPS Executive committee (Excom), Kees took over as the Excom member responsible for the EOC. The Members of the EOC met online on December 11th, 2020.

2020 and the EOC

The year 2020 has been overwhelmingly marked by the COVID-19 pandemic. The imposed home confinement measures in most European countries and the ensuing need to work and teach at a distance using videoconferencing and other numerical tools has heavily disrupted both physics research and education. Several studies have shown that women scientists, among whom women physicists, have borne the brunt of the efforts to maintain, wherever possible, a normal course of events. In particular, where male colleagues have in many cases been able to benefit from confinement to progress on, *e.g.*, publications, the collision of teaching and other educational duties and domestic tasks have made it difficult to assure a continuity in research for many women. This is just one example of a societal problem exacerbated by the COVID-19 pandemic.

It is foreseeable that 2020's (and 2021's...) disruptions will have an effect on the recruitment, assessment, and promotion of women physicists. It is the duty of the EOC to be alert as concerns such perverse effects, and to warn our communities and institutions of these.

Emmy Noether Distinction

In order to promote the visibility of women physicists, The EOC proposes the laureate for the EPS Emmy Noether distinction for women in physics, on the criteria of the nominee's contributions to physics, of her leadership capacity as a principal investigator, on her involvement in research administration, committees, and editorial activities, on her involvement in teaching and educational programmes, and on her action in favour of the community, be it in the promotion of equal opportunities, or in a wider sense within the scope of learned societies and the like.

The Emmy Noether distinction is awarded twice yearly. The summer distinction is "traditionally" awarded to a junior or early career physicist, in 2020, Hatice Altug, head of the Bio-nanophotonic Systems laboratory at École Polytechnique Fédérale de Lausanne (Switzerland) was selected among 12 candidates. The Distinction was awarded (online) during the international conference of the European Optical Society (see <https://www.eps.org/blog-post/751263/357492/>). The winter distinction is typically awarded to a senior scientist having been active in physics for two or three decades already. The winter 2020 laureate of the Emmy Noether distinction is María García Parajo of the ICFO / Institute of Photonic Sciences, Barcelona, Spain.

During its December 11th, 2020 meeting, the members of the EOC agreed to propose, for 2021, a better definition of the purpose of the Emmy Noether distinction, and a better definition of the criteria by which it is to be awarded.

Code of conduct

Following several incidents at physics conferences, the EOC produced, in June 2020, a code of conduct for organisers and participants of and in EPS and EPS-sponsored conferences, asking all to adopt a strictly professional conduct, and condemning "any inappropriate actions or statements based on characteristics such as age, race, ethnicity, sexual orientation, gender identity or expression, marital status, nationality, political affiliation, ability status, educational background or any other characteristics protected by anti-discrimination law". The code of conduct outlines the course of action to be taken should any infringement be noticed or reported. Notably, it binds the EPS to conduct an investigation.

Publications

The EPS Action Plans for Reducing the Gender Gap drafted by Luc Bergé were published in *Europhysics News* 51-3 (August 2020 - <https://doi.org/10.1051/epn/2020306>).

The 2020 calendar "Inspiring women physicists" conceived by Gina Gunaratnam and Claudine Hermann was published. It

includes profiles of Amalie Emmy Noether, Chiara Mariotti, Barbara Marchetti, Maria Skłodowska-Curie, Patricia Bassereau, Kumiko Kotera, Catalina Oana Curceanu, Maria Goeppert-Mayer, Nynke Dekker, Rumiana Dimova, Rocío Borrego-Varillas, and Anne L'Huillier.

Emmy Noether Distinction laureate Hatice Altug was interviewed in the October issue of *e-EPS*. Maria Viñas, Adriana Páiffy, and Cristiane Morais Smith, the laureate of the Winter 2019 Emmy Noether Distinction, were interviewed in the September, August, and January 2020 editions of *e-EPS*, respectively.

An article on the twentieth anniversary of the French association « Femmes & Sciences » appeared in *e-EPS*.

Event organization and participation in Events

A 2-hour session on Diversity and Inclusiveness was organized on August 31, 2020, within the scope of the CMD2020GEFES ONLINE conference of the EPS Condensed Matter Division (CMD). Of the more than 1000 participants in CMD2020GEFES ONLINE, 60 participated in the Session on Diversity and Inclusiveness chaired by Elena Bascones (Instituto de Ciencia de Materiales de Madrid, Diversity and Inclusiveness committee of the Spanish Royal Physical Society RSEF). The participants included the EOC chairperson Luc Bergé as a panel member, as well as the present chairperson Kees van der Beek. The proceedings can be viewed at <https://www.youtube.com/watch?v=5bgvkhdZzYA>.

Kees van der Beek participated (online) in all sessions of the European Open Science Forum (ESOF 2020, 2-4 September 2020) devoted to Diversity as well as to the effects of the COVID-19 Pandemic. He also assisted (online) part in the presentation of the final report of the Gender Gap Project on September 1, 2020. See <https://gender-gap-in-science.org>.

The EOC in 2021

The EOC will continue to attribute the Emmy Noether Distinction, with a call for nominations for the Summer 2021

Distinction going out as of early February 2021. It will propose a better definition of the purpose of the Emmy Noether distinction, and a better definition of the criteria by which it is to be awarded.

Within the scope of the Gender Fairness project, the EOC will also continue to monitor and report on gender representation in EPS and EPS-sponsored conferences, and provide recommendations on how to improve diversity and fair representation during conferences. In this respect, contacts with EPS D&G as well as with the inclusiveness and diversity committees of national societies will be reinforced wherever possible. The recommendations of the EPS Action Plans as to combating non-professional and predatory behaviour at conferences and other events will be implemented.

A plan of action regarding specific measures to be taken as a result of the COVID-19 pandemic, including recommendations and publications will be undertaken.

In the light of consolidating female and minority role models in physics, the EOC will continue the practice of regular interviews for e-EPS and EPN, articles and columns in EPN, and prepare, with the help of Gina Gunaratnam, a 2022 “Inspiring women physicists” calendar.

COMMITTEE ON EUROPE INTEGRATION

Chair: Radu Constantinescu, Goran Djordjevic, Maciej Kolwas, Denes Lajos Nagy, Alexei Morozov, Sofoklis Sotiriou, Gertrud Zwicknagl

The updated EPS – CEI strategy in the pandemic situation

The general strategy of the EPS – CEI, aiming to promote Physics and the scientific cooperation across Central, Eastern and Southern parts of Europe, took into consideration the following five directions:

1. Integrating the access to research infrastructures in Europe.

2. Student training through a School Program supported by EPS.
3. Physics education and teacher training.
4. Strengthening the regional cooperation among EPS member societies and other regional organizations.
5. Promotion of physics in the regions.

In 2020 the activity of the Committee was strongly affected by the general pandemic situation. In these circumstances of the partial or total lockdown, with much reduced traveling possibilities, the decision was to try to keep the contact among the members of the Physics Community using the on-line instruments.

This new approach imposed more synergy and strengthening of the cooperation of EPS with other regional organizations from the Central, Eastern and Southern parts of Europe. The main stakeholders taken into account were: CERN Geneva, ICTP Trieste, BPU – Balkan Physical Union, SEENET MTP – South-Eastern European Network in Mathematical and Theoretical Physics.

Online activities in 2020

1. May 15th, 2020: A JOINT MEETING, WITH THE PARTICIPATION OF CEI-EPS MEMBERS.

During 2020, the members of Committee of European Integration had many online meetings. An important one was held jointly with of BPU and of SEENET-MTP representatives, on May 15th. The aim of this meeting was of taking a final decision on how and when could be organized the main three activities proposed for 2020:

- The PhD School on “Computational Methods in Theoretical Physics” - The second edition of the Balkan Physics Olympiad
- The Workshop on Quantum fields and Nonlinear Phenomena

The decision was that all of them will be organized in the online format. The main organizer will be the University of Craiova, Romania.

2. September 24-27, 2020: THE PHD SCHOOL ON COMPUTATIONAL METHODS IN THEORETICAL PHYSICS.

The School was organized based on the agreement among SEENET-HTP, ICTP and CERN. It was addressed to the

PHD Students from the South-Eastern European Countries, but opened to students from all over the world. A number of 31 PhD students from 10 countries followed the lectures given by 7 specialists in Computational Physics.

The distribution on countries of the participants was the following: Bulgaria-6; Greece-5; Iran-1; North Macedonia-1; Pakistan-1; Romania- 11; Serbia-2; Switzerland-1; Taiwan-1; Turkey-2.

The lecturers and the topic of lectures were: **Luca Heltai** (SISSA Trieste) - High performance Computing

Igor Salom (Institute of Physics, Belgrade) - Computer Techniques in HEP

Raul Jimenez (University of Barcelona, Spain) - Numerical techniques in Cosmology Ioannis Rizos (Ioannina Univ., Greece) - Specific computational techniques in HEP Milan Milosevic (Nis Univ., Serbia) - Simulation techniques

Dumitru Vulcanov (West University Timisoara, Romania) – Computational cosmology Aurelian Isar (NIPNE Bucharest, RO) – Quantum information

Details can be found on the website of the organizer, the University of Craiova, Romania: http://cis01.central.ucv.ro/physics/en/workshop_Sinaia_2020/programschool.html

3. September 27-29, 2020: THE WORKSHOP ON QUANTUM FIELDS AND NONLINEAR PHENOMENA

The PhD School on Computational Methods in Theoretical Physics ended with an Workshop on “Quantum Fields and Nonlinear Phenomena”. It represented in fact the 12-th edition of a traditional meeting organized by the University of Craiova at each two years. The Workshop was attended by 62 researchers, coming from 15 countries: Belgium, Bulgaria, Greece, Iran, Italy, North Macedonia, Pakistan, Romania, Serbia, Spain, Sweden, Switzerland, Taiwan, and Turkey. The 31 PhD Students and early stage researchers participating in the PhD School held in the previous days are included. They had at their disposal a separate session for scientific communications in which 20 papers were presented (oral or as posters on the conference site).

The total number of the scientific papers included in the Workshop Program was 37 papers. They will be collected in a Proceeding, to be published as a special issue of Physics AUC, a journal edited by the University of Craiova and indexed by Scopus.

4. October 24, 2020: THE BALKAN PHYSICS OLYMPIAD – BPO 2.

The BPO contest was addressed to the gifted high-school students from the Balkan Region. It was established in 2019, the first edition being held in Thessaloniki (Greece), in July 2019.

Taking into account the situation generated by the COVID pandemic, the 2020 edition was an online competition, in the joint organization of EPS and BPU. The main organizer was the University of Craiova, Romania. The following 11 countries participated in the contest: Bulgaria, Bosnia and

Hertzevina, Cyprus, Greece, Moldova, Montenegro, North Macedonia, Romania, Serbia, Turkey, and Turkmenistan.

Details at: <https://balkanphysicalunion.info/?p=1252>

Action Plan for 2021

Related to the financial support given to all previous mentioned activities, no financial involvement of EPS was necessary.

With the hope that 2021 will allow the coming back to the normal academic life, and that organization of onsite meetings and conferences will be possible, the EPS-CEI takes into consideration the following Action Plan:

- The next meeting of the EPS-CEI will be organized in Belgrade (Serbia), jointly with the BPU Committee, with invited participants from DPG, CERN and EPS, with an accent on the organization of the

largest meeting of the Physicists from the Balkan region in 2021, in Serbia.

- A new edition of the South-Eastern European PhD School, jointly organized with the Balkan Physics Union General Conference (BPU 11) CERN and SEENET-MTP in Belgrade (Serbia). As in the previous case, participation of students from Central European countries will be partially supported.
- The third edition of the Balkan Physics Olympiad to be organized in Greece, contest addressed to high school students. Supporting the organization and/or the participation of scientists in conferences aiming to promote the cooperation in the South-Eastern Europe.
- Participation of young researchers in Summer School jointly organized by EPS and JINR Dubna

Notes

JOURNALS REPORTS 2020

EUROPHYSICS NEWS (EPN)



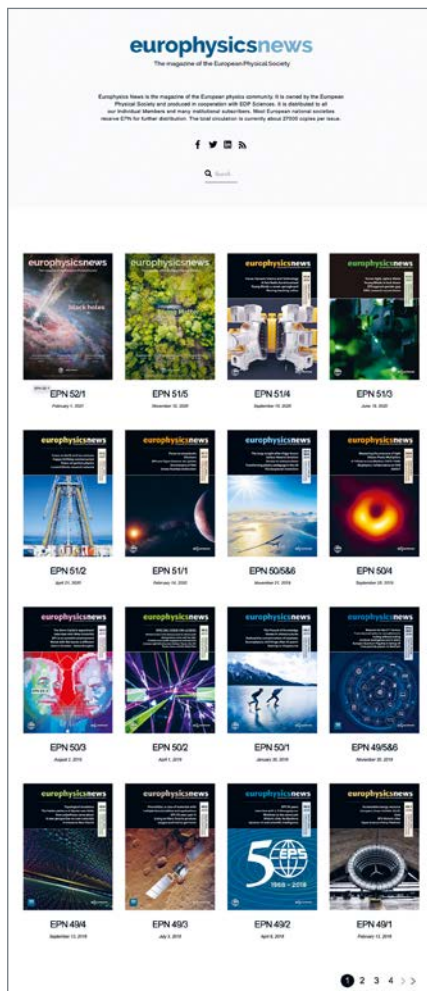
Editor:
Els de Wolf

Science Editor:
Ferenc Iglói

In 2020, the EPN 51 edition comprised five issues published in February, May, July, October and December. Each regular issue had a focus with two to four feature articles on a 'mini-theme'. The mini-themes were chosen in the annual meeting of the Editors with the Editorial Advisory Board in September 2019: 'Exoplanets', 'Earth and Sea Science', 'Light, Optics and Fibres' and 'Vacuum Science and Technology'. The December issue was a double thick Special Issue on the 'Physics of Living Matter'. The Chairs of three different EPS divisions together accepted the task of guest-editor for the Special Issue: Christian Beck, Chair of the Statistical and Nonlinear Physics Division, Kees van der Beek, Chair of the Condensed Matter Division and Felix Ritort, Chair of the Division of Physics in Life Sciences. We thank the three guest-editors for their excellent work and efforts for a very attractive Special Issue. Together, the mini-themes and the Special Issue touched upon a wide variety of physics research and technology. In this annual report we focus on new developments in EPN.

Upgrade of the web-archive at epn.eps.org

The paper version of EPN is published by EDP Sciences and comprises 25,000 copies per issue, which are distributed to Individual Members and National Physical Societies. A digital version is available on two websites: europhysicsnews.org and epn.eps.org. The europhysicsnews.org website is maintained by EDP Sciences. The epn.eps.org website serves as the



web-archive of EPN and is maintained by the EPN Graphics Editor *Xavier de Araujo*. The web-archive contains for each EPN issue an indexed flipbook and currently goes back to EPN 33/2 (2002). Downloading the full issue in pdf-format is possible. You are encouraged to extract contributions for instance for publicity in the social media or for use in education, provided you mention the source. The web-archive has been upgraded in 2020.

The Features

Each issue has several sections. The section with *Feature articles* forms the backbone of EPN, which is taken care of by the EPN Science Editor *Ferenc Iglói*. Each article is reviewed by one or more members of the EPN

Editorial Advisory Board. EDP Sciences assigns to each feature article a DOI number. New in 2021 is that feature articles generally are limited to three pages to allow for more articles in each EPN-issue. From informal feedback, it turns out that the shorter articles and consequently the larger variety in the articles on physics research, education, policy and history is appreciated by readers. Occasionally, authors request permission to publish a longer article.

In the Spotlights

In the section '*In the Spotlights*', short reports are presented such as new research projects, award winners, anniversaries of national physical societies and interesting items from science websites and science journals and magazines. Reports are reviewed by the editors. Since December 2019, the '*Personal Report*' is a standard item in this section in which young award winners in Europe present their winning projects, their background and plans for the future and how they appreciate the award as a contribution to their career. The authors of the Personal Report are invited by the EPN Editor. The '*Personal Report*' started as an experiment to get a feeling for the impact of awards and prizes on the choices that young physicists make. It now turns out that the invited authors highly appreciate the opportunity to present themselves to the broader physics community in Europe.



Young Minds



In EPN 51/2, a new section 'Young Minds' was kicked-off at the occasion of the 10-years anniversary of the EPS-programme Young Minds. The aim of this programme is to

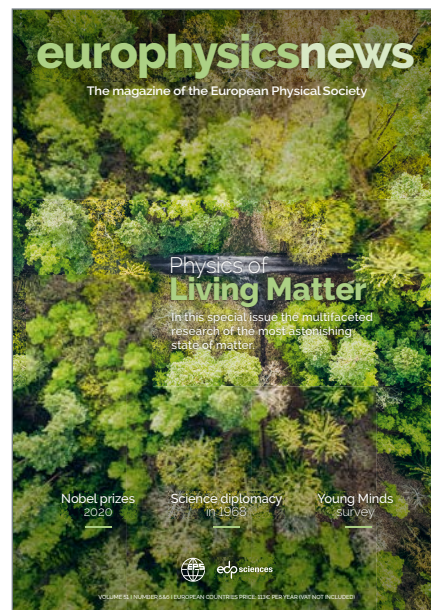
provide young physicists a platform for international networking, outreach and personal development. A dedicated section in EPN gives the youngest in the EPS family the opportunity to keep the European physics community informed about their activities and to present the view and feedback of early-career physicists. In particular, in the realm of the restrictions of the Covid-19 pandemic this is very relevant information for the full physics community. The new two-page section is entirely the responsibility of the Young Minds Action Committee. Consequently, the Chair of the committee became an ex officio member of the EAB. Currently, this is *Richard Zeltner*.

Winners of EPS awards and distinctions

Since awarding prizes and distinctions to encourage and reward talents and excellence is a key activity of EPS, we decided to include in the December issue a new section with the list of awardees in the year 2020. The dedicated section gives the EPS the opportunity to show and archive the wealth of talents in its community and to once more congratulate the winners. It compiles both general EPS awards and those issued by the EPS Divisions. The list was provided by the Chair of the EPS Distinction and Awards Committee *Jo Hermans*.

New look-and-feel of the magazine

In 2020, we have made a modest start with upgrading the look-and-feel of EPN. Hampered by the restrictions of the Covid-19 pandemic and without a dedicated budget, we decided to embark on a gradual transition to a layout of now-a-days scientific magazines. A very visible step is a new design of the front page. It was first applied in December 2020 and will be further developed in 2021. It is the intention to gradually modernise the layout and type setting of the inner pages of EPN in 2021.



In summary, the editorial team of EPN, however small, hopes to continue with making an increasingly attractive magazine with solid physics articles about research and education, human interest and EPS activities, statements and festivities, presented to the readers in an attractive layout and with a keen eye for diversity and inclusion.

EPL



Chairman of the Board of Directors: Christophe Rossel
Editor in Chief: Bart van Tiggelen
Executive Editor: Anne Ruimy
Staff Editor : Frédéric Burr

Production Editor: Barbara Ancarani

Business Manager: David Lee

Product Manager: Zoe Anderson

EPL is a Letters journal created in 1986, covering all aspects in physics and its many interdisciplinary interfaces. It is owned and operated by 17 physical societies and two associated members, under the scientific umbrella of the EPS, affiliated in the EPL-Association. The journal is published through the cooperation of 4 academic

publishers (IOPP, EDP Sciences, SIF and EPS). The strategy and policy of EPL is decided by the EPLA Board of Directors. Any excess generated by EPLA are re-invested, either in EPL or into the physics community through its members. EPLA regularly supports scientific events such as conferences, prizes and workshops. Despite the pandemic that has hit us in 2020, the EPL Editorial Office, Production Office, Sales and Marketing Team, and Editorial Development were able to work mostly normally.

Editorial Board

In 2020, 19 Co-Editors reached the end of their term. Two of them have served loyally on our board for the maximum allowed of 7 years and their terms cannot be extended. Two Co-editors decided to leave the Editorial Board after 3 years, and one was obliged to leave us already after one year.

We deeply thank all Co-Editors for their engagement to EPL. They have received the EPL pyramid for their loyal service.

During the year 2020, 9 new Co-Editors were appointed by the EPS, and one Co-Editor (Professor Lanotte, Lecce, CNR, Italy) was asked to become a Deputy-Editor. Our Editorial Board now comprises 63 Co-Editors and 3 Deputy Editors, covering 24 different countries. Deputy Editors mainly deal with commissioning Perspective papers. Co-Editors should cover all disciplines of physics, as well as all countries important for EPL, which include EPS member states as well as China, India, and North America. The current policy is not to exclude young rising stars for nomination by EPS, and to ensure gender equality as much as possible, currently 38 % female and 62 % male Co-Editors. It is also important to appoint Co-Editors on contemporary themes such as quantum information, machine learning



manager Scholar One® will be implemented (in February 2021). In the year 2020 EPL implemented the tool ORCID and recommends (corresponding) authors to register and use it. Finally, EPL implemented an official data policy, encouraging (for now) authors to deposit data relevant to the published research in open data repositories, and to include a data availability statement in the article to inform readers about the existence and accessibility of additional data.

EPL in numbers

During the year 2020, EPL received 1111 submissions, against 1142 in 2019. After a peak submission year in 2011, the number of submissions was constantly declining, now reaching the same level as in 2004. The numbers for 2020 may indicate that the decline is slowing down. Submissions from Asia (mainly China and India) cover 54 % of the total number of submissions but this number is going down (60 % in 2019), 26 % comes from Europe, including Russia that had more submissions than in 2019. Among the 10 thematic sections our strongest sections are General Physics (37 % of submissions), Electronic Structure, electrical, magnetic and optical properties (17 %) and Interdisciplinary Physics (11 %). Especially our section on Atomic and Molecular Physics is not performing well (only 1.5 % of the submissions).

The current (2019) Impact Factor of EPL is 1.958 (1.885 in 2018). The most highly cited section is General Physics, more specifically boosted by the three subsections Statistical Physics, General Relativity, and Mathematical Methods. EPL is now ranked in the second quartile Q2 of Journal Rankings in Physics and Astronomy, in the category “interdisciplinary physics” (SJR). It is at the bottom of Q2 and in danger of slipping further down to Q3. For many potential authors such “second-rank” position prevents them from submitting to EPL, not rarely discouraged by their funding agencies. EPL also suffers from many “Sleeping Beauties” (around 30 %), *i.e.* zero-cited papers that are potentially interesting but apparently invisible. Our acceptance rate remains constant around a satisfactory 40 %.

We had 463,000 downloads altogether in 2020, among which 48,000 to content

and complexity. Although EPL is open for all physics, the vast majority (80 %) of the published articles are of theoretical and numerical nature. A successful virtual Editorial Board meeting was organized in November. Three identical sessions were set up during the day that facilitated an exchange of information between most Co-Editors and the entire EPL team.

During this year 26 % of the submissions was rejected without external review, either directly by the editorial office for style reasons (5 %), or by the handling Co-Editor after careful reading (20 %). The immediate reject of “bad” manuscripts without peer-review is encouraged, especially because “doubtful” submissions (“Michelson-Morley experiment is wrong”, “General relativity is incomplete”, *etc.*) always exist. Nevertheless, the Editor-in-Chief encourages Co-Editors to accept “controversial” manuscripts, that can generate lively discussions. A good example this year was the manuscript by J. Hirsch (EPL **130**, 17006 (2020) about a possible conflict between BCS superconductivity and the second law of thermodynamics, downloaded over 2000 times, and after 7 months cited already 3 times our Impact Factor.

Only 46 % of the 4100 requests for review led to a report, a percentage that is declining steadily and which highlights our struggle to maintain a high-quality peer-review process. On average 2.3 reports were produced for each submission sent out for review. This last number demonstrates a healthy performance of the Editorial Board, 2 being the

desired value, knowing that some submissions undergo a second round of review. A Co-Editor handles on average 18 manuscripts per year. This average workload is reasonable although some Co-Editors in statistical physics, quantum information, complexity and cosmology often handle more than 3 manuscripts per month. Roughly 25% of the Co-Editors handles 50% of the submitted manuscripts.

EPL applies the COPE (Committee on Publication Ethics) guidelines regarding all issues related to the integrity of scholarly research and commits itself to investigate all well-formulated allegations profoundly and confidentially. After a number of recent cases of (self-)plagiarism, EPL has decided to use the tool Ithenticate® when necessary, and systematically once the new editorial



in 2020. This implies that - on average - a manuscript published in 2020 was downloaded 151 times, a satisfactory number that compares very well to previous years.

Premium papers

In 2020, no less than 52 Perspective articles have been commissioned by the Deputy Editors, 31 have been submitted, 18 accepted and 16 published. They have brought in a total of 5600 downloads, implying an average of no less than 350 per Perspective article. In this year 17 Editor's Choice articles, selected by the Editorial board, were published, and received on average 500 downloads per article. This demonstrates the high quality of Editor's Choices. Like the Perspectives, they are free to read for one year, and of course this favours an easy download. Selected Editor's Choices have been highlighted in *Europhysics News*, but unfortunately this policy is about to change.

Our present policy is to edit each year typically 2 Focus Issues (involving a Co-Editor) on hot topics. In 2020 two Focus Issues have been launched. The first, "Turbulent Regimes in Bose-Einstein Condensates", is edited by Professors Lanotte (Deputy Editor), Carusotto (Co-Editor) and one guest editor, the second, "Progress in Statistical Physics and Complexity", is edited by **Professor Citro (Deputy Editor) and four external guest editors**. Both issues will continue to be open in 2021 and are undoubtedly going to be both of high quality. Focus Issues do not always obtain many citations, nevertheless they attract additional content and help to position EPL in certain areas. Contrary to regular Issues, printed Focus Issues will be distributed among authors and editors.

Editorial strategy

In 2020, the Board of Directors chose to develop a new editorial strategy to counteract the decrease in submissions and the unattractive Impact Factor. This editorial strategy is based on commissioning a higher number of Perspective articles, that are on average more highly cited than regular (and Focus issue) articles. The target for 2020 was to reach 20 Perspective articles which, based on citation modelling on historical data, should bring the Impact Factor

beyond the 2.0 threshold. The commissioning activity currently rests primarily with the Deputy Editors.

Discussions took place throughout 2019 and part of 2020 on a combined OA/editorial strategy to reverse the editorial decline of the journal while addressing open access mandates such as Plan S. The decision was finally made to pursue the course of adding EPL to "transformative agreements" negotiated by IOPP. This will allow authors from several European countries to publish in EPL in open access free of charge. Commercial negotiations for the inclusion of EPL in transformative agreements from 2021 are ongoing.

Editorial Process

The editorial process, from submission to publication, requires a work flow among the offices in Mulhouse, Bologna, and Bristol. IOPP recently took over all sales. A strong element of EPL remains the quality and efficiency of the entire editorial process. The median time for the process from submission to acceptance is 76 days, steady with respect to 2019. For manuscripts that do not require revision this number drops to 37. The average response time of a reviewer being 17 days, we conclude that a significant delay in the editorial process is in fact external, and does not arise from either our desks or our Co-Editors. The median time from acceptance to on-line publication is 31 days. This is much faster than in 2019 (41 days) because of an efficient re-organization of the SIF desk in Bologna. These numbers imply that a good paper can be published in less than 3 months, and even faster if a Co-Editor insists on a fast-track.

The decision to change the editorial system of EPL will have a significant impact on the editorial workflow of EPL. The migration process from the current in-house system 4D to Scholar One® (owned by Clarivate Analytics) is currently in preparation, and the expected go-live date is the 15th of February 2021.

EPL outreach

The COVID pandemic unfortunately cancelled many events that EPL had agreed to support, and a few were converted into virtual meetings. This was the case for the

100th anniversary of the Polish Physical Society, that was supported with 3 EPL Prizes selected by a jury presided by Prof. Sosnowska, Co-editor of EPL. EPL also contributed, as usual, to the EPS Condensed Matter Division Europhysics Prize, awarded every two years and this year to Professor Jörg Wrachtrup in Stuttgart for his work on quantum coherence in the solid-state and its applications in sensing. EPL contributed actively to the meet-the-editors session (Nature-Physics, APS and EPL) organised in September by the EPS Young Minds (see YOUTUBE).

Marketing & Promotion

Key campaign activity in 2020 focussed on EPL Highlights, premium papers, peer review and trending publications.

The Highlights campaign 2019 (involving Premium articles published in 2019, or characterized by many downloads) is the largest campaign of the year. Each article featured a mini abstract (written by the EPL senior Editors). EPL discontinued the publication of a printed booklet for the Highlights. The Highlights webpage was promoted throughout 2020, supported by email campaigns to EPL authors and reviewers (46% open rate, 17% click rate), as well as to target authors (63% open rate, 5% click rate) identified using a list purchased from Clarivate Analytics. To encourage author loyalty, we sent authors of Highlights an email with a congratulation and a personalised certificate. This email performed incredibly well with a 100% open rate and a 57% click rate.

With 2020 physical conferences either cancelled, postponed or flipped to virtual, we further supported the Highlights promotion through digital means to extend the reach and to increase readership. A banner advert on the EPL homepage had over 111,000 impressions and received almost 100,000 clicks. A Google Adword promotion campaign received 2,330,000 impressions, and 27,000 clicks to the EPL page. A similar campaign focussed on Perspective articles only was also impressive with 165,780 impressions and no less than 45,560 clicks. We have promoted 10 EPL's most trending articles in 2020 to authors and target authors, with very satisfactory open rates. Finally,

EPL is on Twitter and has 1200 followers, slightly more than in 2019.

In a survey on peer review carried out by IOPP, EPL reviewers were asked for feedback on their key motivations to provide peer review, and their values in terms of being recognised. We received almost 300 respondents from over 40 countries. Reviewers put less value on certificates, physical gifts, or other any rewards with an equivalent monetary value such as a reduction on article publication charges or on a subscription to the journal. Reviewers want to understand most of all if and how their review is taken into account to reach a final decision, and how Editors judge the quality of their review.

Future challenges

With the Plan S issued in 2018, the challenge for EPL to respond to Open Access becomes more urgent than ever. The Plan S insists, in a nutshell, on immediate open access free for all readers and accepts

different ways to accomplish this. Today, EPL is a hybrid journal with only very few Open Access papers (10 in 2020), classified as a Romeo/Sherpa green Journal: EPL requires the transfer of Copyright from the author to the journal, but allows immediate archiving on the personal website, yet with 12 months embargo to post on institutional repositories. Several elements are Plan-S incompatible. Since 2019, the EPL team has been engaged into a profound internal discussion on if and how to respond to Open Access. The strategy that is currently followed by the Board of Directors is to try to squeeze EPL into the transformative agreements that IOPP is negotiating with many research organisations, and to identify their EPL authors. A challenge in the longer term will be on how to address Plan S compliance following the end of the transitional period during which transformative agreements are deemed compliant (end of 2024). For now, the journal has decided not to plan a broader transition to open access.

The increase of the impact factor and the ranking of EPL is another major challenge, crucial for EPL survival. We hope that the active commissioning of articles will bring us back excellent authors. An active role of EPS Divisions and Groups to seek authors and topics for EPL would be most welcome. The PACS identification scheme has become obsolete, and EPL is searching for a new taxonomy. This may go along with a new and modernized section index yet to be defined.

Concerning the evolution of the Editorial Board in 2021, no less than 34 Co-Editors will reach the end of their term. Fortunately, 22 Editors have agreed to take a second or third term. Approximately 12 new Co-Editors will soon be appointed by the Executive Committee of EPS.

The Board of Directors has begun the search for a new Editor in Chief to replace Bart van Tiggelen whose term will expire at the end of 2021. EPS members, publish in EPL, it is your journal!

Notes

This image shows a single sheet of white paper with horizontal blue lines, resembling notebook paper. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

EUROPEAN JOURNAL OF PHYSICS (EJP)



Editor in Chief:
Mojca Čepič and
Hannah Chapman

IOP Publishing is pleased to report to the council a successful year for European Journal of Physics (EJP). There were several changes in the Publishing team and external Editorial Board. We welcomed our new Editor in Chief, Mojca Čepič from Slovenia, and thanked Michael Volmer from Germany for his invaluable service in the role. Iain Trotter was briefly replaced by Ian Forbes and then Hannah Chapman in the role of Publisher and we welcomed both Lucy Joy and James McArdle as Associate Editors, replacing Stephanie White. The increased support from the Publishing team allowed us to continue delivering to deliver excellent customer service and improve on our competitor-beating processing times, while handling a significantly increased significant increase in the number of submissions against the backdrop of a global pandemic. The journal continues to deliver on its dual aims of supporting the growing field of physics education research and providing valuable resources for in-service educators – actively helping to foster improved collaboration where these two facets meet.

We hold a steady position with both Western Europe and the US community and have seen greater engagement from communities in Asia, with a 47% increase in submissions from this region. IOP Publishing is also delighted to report a substantial increase in the financial contribution to the European Physical Society, to €107,885.

Editorial activity

The editorial board continues to offer invaluable support to the journal, especially in a year that presented as many challenges as 2020; whether acting as Guest Editors for focus issues, contributing and commissioning high quality content, and promoting the journal at virtual conferences. We did not add to the editorial board in 2020 but will continue in our efforts to improve the diversity and geographical representation of the board.

2020 saw the first published articles in our Spotlight on Nuclear Fusion, Guest Edited by Julien Hillairet and Alf Köhn, highlighting the important work of scientists around the world in promoting the purpose of fusion research in schools and universities. We will pursue further contributions to this Spotlight collection in 2021. We continued to publish articles in our ongoing Focus On Physics Competitions, Guest Edited by Angela Fösel, and hope that these articles will increase the awareness of the value of physics competitions in attracting young students to science. 2021 will see us exploring the ways

that technology and global events, such as Covid19, impact teaching and laboratories in two planned Focus Issues on Remote Laboratories and Physics Lab Work in the 21st Century. EJP also published 5 Review articles in 2020, covering topics such as fluid mechanics, quantum mechanics, and memory function formalism. The commissioning of reviews will be an area of focus for the editorial board as we move into 2021 and we hope to see the same high levels of submissions of this article type.

The continued strong performance of the journal is illustrated in the submissions and acceptance figures for 2020. After the slight drop in 2019, 2020 saw an increase in submissions of 27% and 6.45% in acceptances. The EJP publishing team have responded to the increased number of submissions by recruiting a second Associate Editor and continue to work on improving internal workflows to deliver competitive processing times despite the increase in articles.

Overall article downloads figures showed a slight improvement on last year overall, with Open Access downloads increasing by 37%. We saw a small number of articles performing particularly well and as consistently high downloads across a greater number of articles. We will continue with our marketing approach of mixing tailored direct contact and direct social media interaction with an engaged audience. 2021 will also see a greater focus on our Open Access content to reflect the engagement we saw in 2020.

Geographic Region	SUBMISSIONS (BY RECEIVED YEAR)					ACCEPTANCES (BY FINAL DECISION YEAR)				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Africa	34	44	46	65	47	3	2	1	3	2
Asia	188	225	229	247	364	38	22	25	23	53
Australia	15	20	18	29	27	9	12	12	12	13
Cent/S. America	47	56	62	55	62	22	26	16	15	26
E. Europe	74	79	75	75	72	24	26	29	22	17
Middle East	86	83	78	84	97	20	5	12	8	10
N. America	118	127	141	106	132	52	48	60	33	67
UK	19	28	19	19	27	9	17	10	8	20
W. Europe	180	175	159	159	168	91	83	72	45	73

Article Type	SUBMISSIONS (BY RECEIVED YEAR)					ACCEPTANCES (BY FINAL DECISION YEAR)				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Papers	651	767	774	754	941	224	206	200	156	247
Letters	26	15	17	5	0	2	0	0	0	0
Reviews		19	21	10	17	29	3	7	4	3
Special Issue /Focus on	34	14	17	9	9	20	14	19	4	9
Other	31	29	19	15	36	19	15	14	6	21
Total	761	846	837	800	1015	268	242	237	169	281

Our highest performing articles were all published on an open access basis. In 2021 we will be working to increase the visibility of articles from authors who do not have the resources to fund open access publication.

Marketing activity

European Journal of Physics has been marketed through a variety of channels over the last 12 months including email marketing and through the 'Education' portfolio. In April our 'Read and explore the latest research in education' email campaign was sent to 1,801 contacts, opened by 46% and clicked by 19%.

Education subject collection page

In 2020 we launched the 'Education' subject collection page to showcase the leading international journals supporting the physics education community, by assisting in improving the standard of taught physics at all levels, from schools through to universities. EJP is a leading journal on the page and content is updated throughout the year. Users are directed by social media, email and advertising. In 2020 the page received over 30,000 views and is considered one of most successful information hubs.

The subject collection can be found online at <https://iopscience.iop.org/page/education>

Conferences and events in 2020

In engaging with the community and interacting with target authors, we can maintain relationships, build confidence in researchers, and work on improving the journal profile. This interaction with the community is vital and plays a major role in our marketing plans and activities. However, 2020

presented a unique set of difficulties, in part due to the changes in the publisher role, and due to the disruption caused by Covid19. European Journal of Physics was represented at CCS2020 by Hannah Chapman, who delivered an introductory presentation on the journal alongside representatives from EPL, Journal of Physics Complexity Journal, and PCI Network Science. The session was intended for young scientists to have a first-hand exposure face-to-face with the editors and for the editors always ask for feedback from the community. Publishing staff had also planned on attending GIREP's

3rd World Conference on Physics Education, however the conference has been postponed until July 2021.

In conclusion

In 2020 European Journal of Physics has needed to adapt to staff changes, to the increase in submissions, and to the continued impact of COVID-19. With the support of the editorial board and our new Editor in Chief we hope to increase the commissioned content we publish in 2021 and beyond, exploring topics that continue to raise the journals profile and drive growth.

In 2020: 53,717 Downloads of 2020 EJP content and 315,191 Total Downloads of all EJP content.

ARTICLE TITLE	VOLUME	ISSUE	ONLINE DATE	DOWNLOADS
Beyond velocity and acceleration: jerk, snap and higher derivatives	37	6	13/10/2016	33,389
Stability of democracies: a complex systems perspective	40	1	27/11/2018	8,989
How online learning modules can improve the representational fluency and conceptual understanding of university physics students	36	4	10/06/2015	6,515
What the gravitation of a flat Earth would look like and why thus the Earth is not actually flat	40	3	16/04/2019	5,530
On Feynman's handwritten notes on electromagnetism and the idea of introducing potentials before fields	41	3	02/04/2020	4,737
The variational method in quantum mechanics: an elementary Introduction	39	3	13/04/2018	4,206
High-speed sailing	39	4	08/05/2018	4,177
'The concept of information in physics': an interdisciplinary topical lecture	36	1	19/11/2014	4,075
Student understanding of Fermi energy, the Fermi-Dirac distribution and total electronic energy of a free electron gas	41	1	06/12/2019	3,939
Forces on hockey players: vectors, work, energy and angular momentum	40	6	13/09/2019	3,071

E-EPS



Editor: A. Bracco - Technical Editor : G. Gunaratnam

Overview since the creation in May 2011

In January 2020, the e-EPS newsletter changed its format. The articles started to be published on the EPS website eps.org instead of the dedicated epsnews.eu website. Therefore the usual statistics are not available.

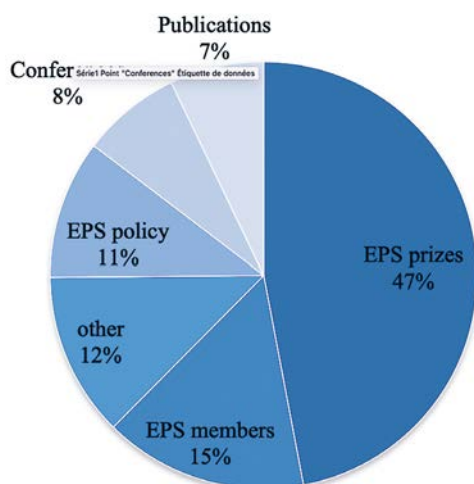
Due to the crisis related to the pandemic, the EPS team was locked down in March 2020. Due to technical reasons, e-EPS was sent to individual readers. It was however publicised on the social media accounts of the EPS (LinkedIn, Twitter and Facebook).

Most read articles in 2018 (>100 visits)

On the blogs "EPS Activities", "Publications" and "ESPD" (Solar Physics Division) of the EPS website.

Distribution of articles per category

From the above list of articles on the blogs of the eps.org website (>100 views).



TITLE	VIEWS
2020 Lise Meitner Prize to Klaus Blaum Bjorn Jonson Piet Van Duppen	1245
The EPS Alfven Prize 2020 is awarded to Dr Annick Pouquet	396
2019 Winter edition of the Emmy Noether Distinction: Interview with Cristiane Moraes Smith	355
EPS Council 2020 Luc Berge is the next EPS President Elect	349
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Conferences Organised in 2020

CONFERENCE	PLACE	PARTICIPANTS	DIVISION/GROUP
EGAS50	Postponed in July 2021		Atomic, Molecular and Optical Physics
ICPEAC	Postponed to 2023		Computational Physics Group
IUPAP	Postponed to 2021		Computational Physics Group
CMD2020 GEFES with 28th General Conference of the CMD	Online	556	Condensed Matter Division
JEMS 2020	Online	556	Condensed Matter Division
			European Solar Physics Division
4 th biannual conference of HoP	Postponed June 2021		History of Physics
World Conference In Physics Education	Postponed in 2021		Physics Education Division
Out of equilibrium Physics in Biology	Virtual Meeting		Physics in Life Sciences Division
47 th Annual Conference	Postponed to 2021		Plasma Physics Division
EUROPHOTON 2020	Online conference		Quantum Electronics and Optics
NANOMETA 2020	Postponed to 2022	540	Quantum Electronics and Optics
Sigma-Phi Statistical Physics conference	Postponed in July 2021	200	Statistical & Nonlinear Physics Division
Dynamics Days Digital	Venice, Italy	400	Statistical & Nonlinear Physics Division
IPAC20	Vancouver, Canada	3026	Accelerator Group

Prizes Awarded in 2020

PRIZE	LAUREATE	DIVISION
Rolf-Wideroe Prize	Lucio Rossi, CERN, Switzerland	Accelerator Group
Gersh Budker Prize	Hideaki Hotchi, JPARK, Japan	Accelerator Group
Frank Sacherer Prize	Johannes Steinmann, ANL, USA	Accelerator Group
Bruno Touschek Prize	Angel Ferran Pousa, DESY, Germany	Accelerator Group
2020 Olli Lounasmaa Memorial Prize	Seamus Davis of Oxford University, UK	Condensed Matter Division
2020 CMD Europhysics prize	Jörg Wrachtrup, Univ. of Stuttgart, Germany	Condensed Matter Division
Biennial Physics Estoire is awarded in conjunction with the biannual International Conference on the History of Physics	Postponed in June 2021	History of Physics
2020 Lise Meitner award 2020 IBA award	No information	Nuclear Physics Division
Emmy Noether Distinction	Aleksandra Radenovic	Physics in Life Sciences
EPS Alfven Prize 2020	Annick Pouquet, University of Colorado, USA.	Plasma Physics Division
Joint EPS-APS Landau-Spitzer Prize 2020	Riccardo Betti, University of Rochester, USA	Plasma Physics Division
No Prize due to the pandemic situation.		Quantum Optics & Optics Division

Atomic Molecular and Optical Physics Division

Chair: Joachim Burgdörfer

Sections

- Electronic and Atomic Collisions
- Chemical and Molecular Physics
- European Group on Atomic Systems

Conferences

- EGAS52 postponed to 2021
- ICPEAC XXXII postponed to 2023

Prizes

- No Prize given due to COVID

Website

- www.eps.org/eps-amopd

Gravitational Physics Division

Chair

- Mairi Sakellariadou

Conference

- No conference organised in 2020

Prizes

- In the area “Environmental Physics” a large number of international prizes are awarded regularly. As a consequence a sponsor for a new prize could not be found up to now

Website

- www.eps.org/group/GPD

Condensed Matter Division

Chair: Kees van de Beek

Sections

- Liquids, Macromolecular Physics, Magnetism, Structural and Dynamical Properties of Solids
- Semiconductors and Insulators, Surfaces and Interfaces

Conferences

- CMD2020 GEFES with 28th General Conference of the CMD went online
- JEMS 2020 online
- ECOSS 35 Postponed to 2021
- Liquids 2020 Postponed to 2021
- CMD29 Postponed to 2022

Prize

- CMD Prize
- 2020 Olli Lounasmaa Memorial Prize

Website

- www.eps.org/eps-CMD

High Energy And Particle Physics Division

Chair

- Thomas Gehrmann

Website

- <http://eps-hepp.web.cern.ch/eps-hepp/>

Nuclear Physics Division

Chair

- René Reifarth

Conferences

- N/A

Prizes

- IBA Europhysics Prize (Applied Nuclear Science and Nuclear Methods in Medicine)
- Lise Meitner Prize (Nuclear Science)

Website

- www.eps.org/group/NPD

Environmental Physics Division

Chair: Johannes Orphal

Conferences

- No conference organised in 2020

Prize

- In the area “Environmental Physics” a large number of international prizes are awarded regularly. As a consequence a sponsor for a new prize could not be found up to now

Website

- www.eps.org/group/EPD

Plasma Physics Division

Chair

- Richard Dendy

Sections

- Beam Plasma and Inertial Fusion Section, Dusty and Low Temperature

Conference

- 47th Annual Conference postponed

Prizes

- EPS Alfven Prize 2020
- Joint EPS-APS Landau-Spitzer Prize 2020

Website

- <http://plasma.ciemat.es/eps/>

- David Sands

- None postponed

- None

- www.eps.org/group/PED

Dr. David A. Clark

- Christian Beck

- CDynamics Days Digital

- None

- www.eps.org/group/SNPD

- Felix Ritort

- Out of equilibrium Physics in Biology

- Emmy Noether Distinction

- www.eps.org/group/DPL

- Giulio Cerullo

- EUROPHOTON 2020

- No Prize given due to COVID

- <http://qeod.epsddivisions.org/>

- Eduard Kontar

The JSPD is a joint Division with the European Astronomical Society (EAS) and the European Physical Society (EPS)

- No conference organised in 2020

- PhD Student Prize

- www.eps.org/group/ESPD

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Accelerators Group**Chair**

- Ralph Assmann

Conference

- IPAC20 held on-line

Prizes

- Rolf-Wideroe Prize
- Gersh Budker Prize
- Frank Sacherer Prize
- Bruno Touschek Prize

Website

- <http://www.eps.org/group/EPS-AG>

Physics for Development Group**Chairman**

- Joe Niemela

Conference

- none

Prize

- none

Website

- www.physdev.org

Computational Physics Group**Chair**

- Carlo Bertoni

Conferences

- IUPAP postponed to 2021

Prize

- None

Website

- <http://phycomp.technion.ac.il/~EPS-CPG/>

Technology and Innovation Group**Chairman**

- Markus Nordberg

Conference

- Technology and Innovation Workshop

Website

- none

Notes**Energy Group****Chair**

- Jozef Ongena

Conference

- All conferences cancelled due to Covid

Prize

- N/A

Website

- <http://epsenergygroup.eu/frontend/index.php>

History Of Physics Group**Chairman**

- Karl Grandin

Conference

- 4th biannual International Conference postponed to 2021

Prizes

- No prize this year

Website

- <http://www.ehphysg.eu/>

More about EPS groups:
https://www.eps.org/members/group_select.asp?type=8737



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