

THE AMERICAN PHYSICAL SOCIETY

Annual Report

2022





OUR MISSION

To advance and diffuse the knowledge of physics for the benefit of humanity, promote physics, and serve the broader physics community, we:

- Provide a welcoming and supportive professional home for an active, engaged, and diverse membership
- Advance scientific discovery and research dissemination
- Advocate for physics and physicists, and amplify the voice for science
- Share the excitement of physics and communicate the essential role physics plays in the modern world
- Promote effective physics education for all

OUR VISION

To excel as a leading physics society, we will:

- Be the authoritative advocate for physics
- Publish world-leading journals in physics and related sciences
- Convene vital meetings, conferences, and workshops
- Engage and support the next generation of physicists
- Foster equity and inclusion, and increase diversity in all its dimensions
- Expand public appreciation of physics and its many contributions

OUR VALUES

The core values that drive our mission are:

- The Scientific Method
- Truth and Integrity
- Diversity, Inclusion, and Respect
- Partnering, Cooperation, and Open Collaboration
- Speaking Out
- Education and Learning



During my second year as CEO, I continued to be impressed by the great vitality of APS and by the tremendous passion with which our members and staff work to advance our mission.

The year 2022 brought both challenges and opportunities as APS emerged from the pandemic. Our meetings, in particular, navigated challenging terrain, adapting to changing circumstances while piloting new formats for in-person and virtual meetings. Overwhelmingly, members were grateful for the opportunity to connect once again in person. Members also expressed their desire for an even better virtual experience, recognizing its important role in increasing access, especially for early career scientists, as well as for reaching both historically marginalized and international communities. From these learnings, we continue to innovate and are preparing for a very busy 2023.

On the publishing front, the *Physical Review* team took positive steps to secure our position as the world's premier publisher of physics journals. We launched *PRX Life* to provide a home for publications at the interface between physics and biology. Midway through the year, we were delighted to welcome Rachel Burley as our new Chief Publications Officer. With her extensive experience in scholarly publishing, Rachel will lead APS into the brave new world of open science with an expanded portfolio of journals covering physics and adjacent sciences.

During the course of the year, APS strengthened its commitment to ethical conduct, diversity, equity, and inclusion (DEI), while at the same time, zeroing in on opportunities to improve the member experience. We launched two high-level searches to grow our capacity to address ethical conduct in our discipline, promote a culture of access and inclusion, and strengthen our approach to membership, marketing, and communications. During 2022, APS also focused on improving partnerships with allied societies and engagement with our international members. APS continues to be committed to meeting the changing needs of the global physics community.

I would like to thank our 2022 President, Frances Hellman, for her close collaboration and wise counsel during the year. I remain grateful to you, our members and partners, for the time and resources you dedicate to APS and its activities. Your commitment is critical as we work to support the broader physics community in pursuit of our common mission: advancing physics.

A handwritten signature in black ink that reads "Jonathan A. Bagger". The signature is fluid and cursive, with a large, sweeping initial 'J'.

Jonathan A. Bagger
APS Chief Executive Officer



When I assumed my leadership role as APS President, I intended to cultivate various activities in support of the Society's mission and values, and specifically to carry forward the torch lit by my predecessor, Jim Gates, who launched crucial

efforts to change the culture of physics. Such efforts are important not simply because our 2019 Strategic Plan calls on us to embrace diversity, equity, and inclusion (DEI), but also because it is the right thing to do for our discipline.

We have celebrated much progress over the past year in our work to increase the participation of historically underrepresented groups in physics. The STEP UP program, aimed at increasing the number of women majoring in physics, received a \$3 million grant from the Gordon and Betty Moore Foundation to grow its activities. PhysicsQuest, which continues to deliver high-quality physics activities to middle school science classrooms, has expanded its online offerings with support from the Eucalyptus Foundation. With sponsorship from the Simons Foundation, 31 African American undergraduate students received \$10,000 stipends to further their studies, helping our community toward its goal of doubling the number of physics and astronomy degrees earned by African Americans by 2030. Attracting and retaining underrepresented groups to the profession of physics is essential. The future of our discipline depends on it.

With input from the APS community, I led efforts to develop a new governance structure for APS's scientific publications to ensure the continued excellence of the Physical Review journals. Under the new structure, the Editor in Chief (EIC) oversees the quality, relevance, scientific integrity, and editorial excellence of APS's scientific publications. After leading the search for this position, I am excited to report that the Board has appointed Randall Kamien, a soft matter physicist, to this key role.

APS continued to advocate for opportunities to ensure that the United States is a welcoming place for international students and scientists. Our advocacy supported efforts to include the Keep STEM Talent Act as a bipartisan amendment to the National Defense Authorization Act, directly addressing APS member concerns related to barriers that many international scientists have experienced when

applying for US visas. Our advocacy also played a critical role in ending the Department of Justice's "China Initiative." In addition, we saw the passage of the most significant piece of science legislation in the United States in more than a decade, the CHIPS and Science Act. The legislation includes key provisions designed to end sexual harassment in STEM and diversify the US scientific workforce — issues for which APS members have advocated for many years.

Despite the joy in these many successes, there have also been frustrating challenges. The spread of misinformation about science — and its impact on the wellbeing of society — was a central point of discussion at our 2022 Annual Leadership Meeting. To empower members to contend with scientific misinformation, APS organizes the Science Trust Project. This effort has been member-driven since the start, and thrives with support from its members. I continue to encourage all our members to engage with the impactful webinars and workshops that the Science Trust Project routinely offers, and to consider supporting this effort.

In acknowledging the many important contributions from you, our members, I would be remiss if I did not also thank each of you for your membership. Membership dues helped APS undertake so many impactful initiatives this past year. I ask that this year, you also consider a donation to APS, to help broaden our capacity to have such a lasting and meaningful impact.

With so many accomplishments in this past year, I feel hopeful about our future — as researchers, students, teachers, thought leaders, and agents of change. It is with incredible gratitude for the collegiality and partnership of APS CEO Jonathan Bagger that I hand the torch to 2023 APS President Bob Rosner. This is an exciting time to be a part of APS. And although there will continue to be challenges ahead, I can confidently say that APS is well-positioned to tackle them.

A handwritten signature in black ink that reads "Frances Hellman". The signature is fluid and cursive, with a long horizontal line extending to the right.

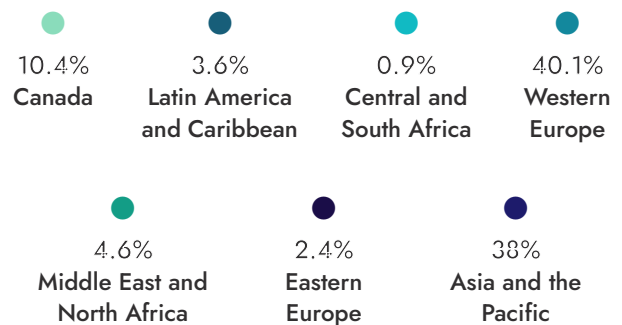
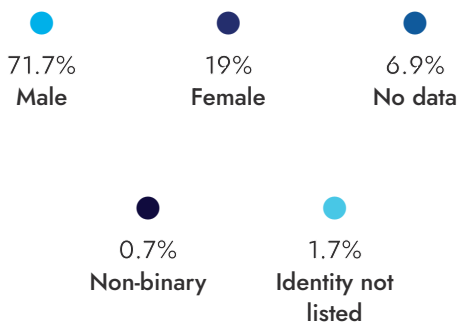
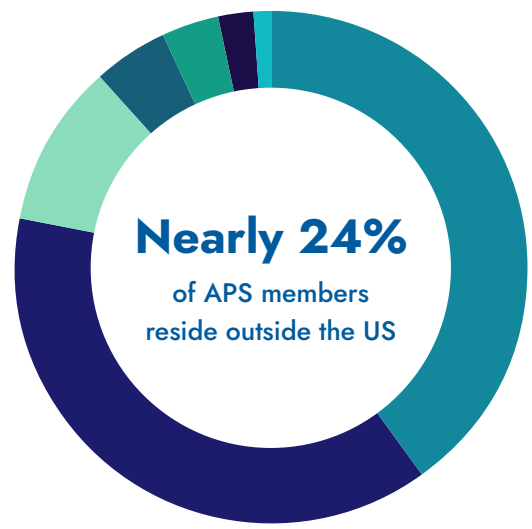
Frances Hellman
2022 APS President

*Departments of Physics and of Materials Science & Engineering,
University of California, Berkeley
Materials Sciences Division, Lawrence Berkeley National Laboratory*

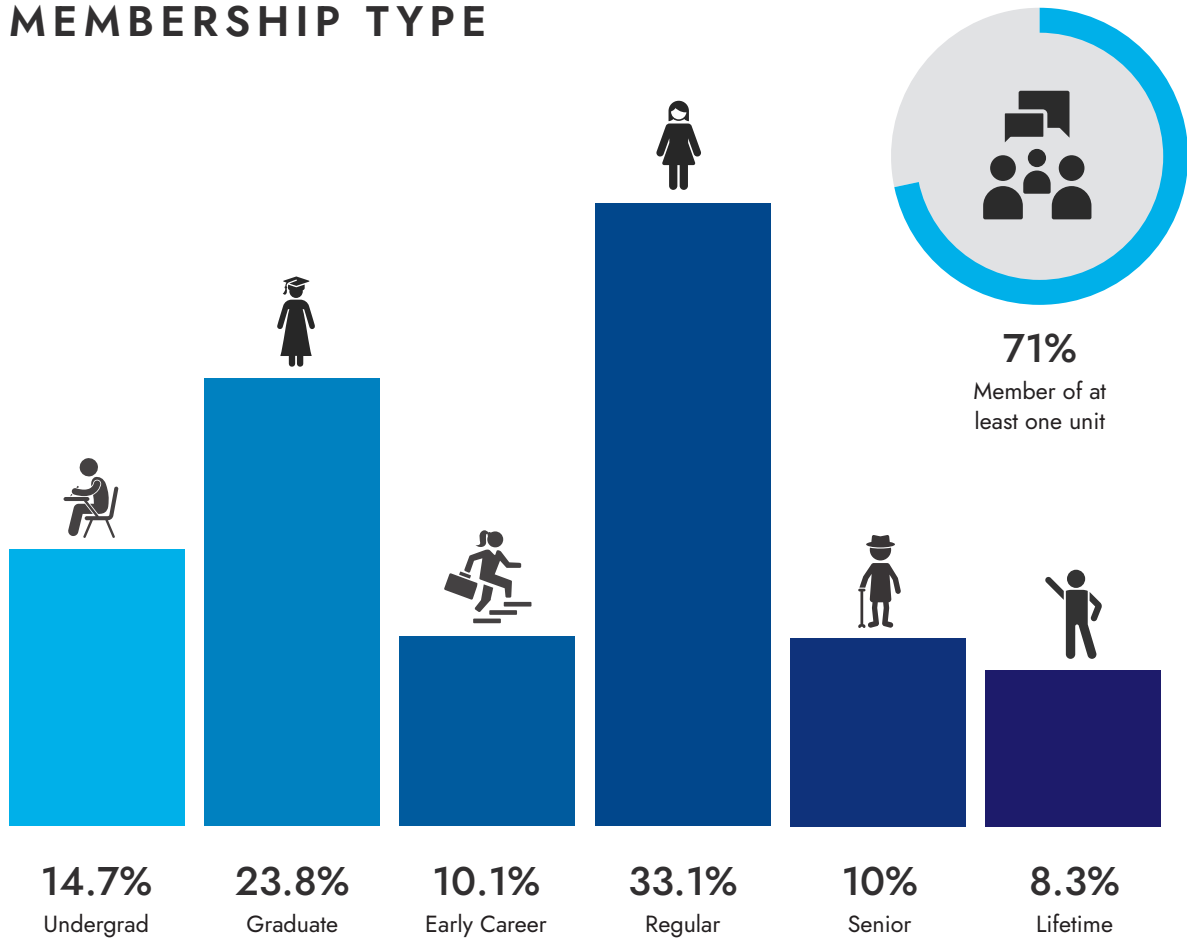
Membership Demographics

An international community where you can grow your career, share your work, and network with your peers at the largest physics meetings in the world

APS MEMBERSHIP IN 2022



MEMBERSHIP TYPE



2022 APS FELLOWS

157
FELLOWS
ELECTED



70%
Male



27%
Female



3%
No data



27%
International

APS Initiatives

ADVANCING PHYSICS FOR ALL

A range of programs that improve physics education, impact policymakers, increase diversity, and inform the public about the importance of physics.

990 Attendees registered at APS Career Fairs

~300 Jobs advertised at APS Career Fairs

140 Attendees at the Advancing Graduate Leadership Conference

\$386,000 Awarded in Innovation Fund grants

Nearly **50%** of US physics departments are members of PhysTEC

Support for Women and Gender Minorities

Conferences for Undergraduate Women in Physics

The 2022 Conferences for Undergraduate Women in Physics (CUWiP) took place in January, with the keynote address by Nobel Laureate Donna Strickland. Approximately 1,300 people registered across the US. In addition, the International Atomic Energy Association (IAEA) ran an aligned international virtual CUWiP with over 60 countries and over 1,200 attendees. The goal of CUWiP is to support undergraduate women in physics by providing them with professional experiences and access to other women physicists at all career levels.

Advancing Graduate Leadership Program

The Advancing Graduate Leadership (AGL) Program aims to offer top-notch professional development and leadership training to female and gender minority graduate students and early career scientists. In 2022, the program held its first-ever AGL Conference, with nearly 140 participants from across the United States.

STEP UP Program

In July, the STEP UP team received a \$3 million grant from the Gordon and Betty Moore Foundation to support the mobilization of hundreds of high school physics teachers in three of the United States' largest school districts. STEP UP is a community of over 5,000 physics teachers, university faculty, and students that empowers high school teachers and creates cultural change to inspire young women and historically underrepresented students to pursue physics in college.

“I really enjoyed having the chance to watch my students realize that so many careers actually have some physics behind the scenes or how having a physics background further supports their career.”

– STEP UP Participant

Support for Higher Education

Physics and Astronomy New Faculty Workshops

The Physics and Astronomy New Faculty Workshop series hosted its first-ever West Coast workshop in Los Angeles, California, with 62 participants in attendance. Over the course of three years of virtual workshops, attendees have learned valuable teaching techniques, discovered new resources, and connected with peers. The series has received a five-year grant of approximately \$2.8 million from the National Science Foundation (NSF) to expand its support for physics and astronomy faculty.

National REU Site Leaders Workshop

The Physics Research Experiences for Undergraduates (REU) Workshop for site directors was held in Evanston, Illinois, in November. This NSF-funded meeting brought together seven presenters and 51 leaders of summer REU programs in physics, astronomy, and materials science to connect, share program assessment tools, and build even stronger undergraduate research experiences for physics students.

Get the Facts Out

The project aims to improve the reputation of the teaching profession and has had an impressive reach, engaging at least 10,000 students and faculty in learning activities, and another 10,000 through outreach. In 2022, 66 members of the APS community contributed to presentations and other outreach activities that reached hundreds of students and faculty and improved their view of the teaching profession.

Support for Diversity, Equity, and Inclusion

National Mentoring Community

The National Mentoring Community (NMC) hosted bi-monthly virtual meetups for NMC mentees. The NMC Mentee Meetups are designed to provide space for Black, Latino, and Indigenous physics students and physics mentees to build community and have their academic and professional questions answered by physicist mentors from academia, industry, and government within an informal setting. In addition, the NMC grant program Bringing Emergency Aid to Mentees (BEAM) Fund continues to be well utilized by NMC mentees. BEAM awarded over \$16,000 in emergency grant funding to support mentees who faced sudden financial emergencies.

APS Inclusion, Diversity, and Equity Alliance

The APS Inclusion, Diversity, and Equity Alliance (APS-IDEA) continues to transform the culture of physics by supporting the 99 teams of the program's international network. APS-IDEA workshops took place in the spring and fall of 2022. Six topical cohorts were launched in the fall of 2022. Funding from the Alfred P. Sloan Foundation supported the implementation of team focus groups, helping the project leaders to learn more about team experiences within APS-IDEA. The focus groups were conducted as part of an evaluation plan to learn more about how teams were benefiting from APS-IDEA. An external evaluator conducted these focus groups and also used the data to provide a list of recommendations on areas for improvement for the project. These focus groups generated a set of four team case studies for sharing within the network.

Effective Practices for Physics (EP3) Initiative

The NSF-funded EP3 initiative supported physics department leaders by publishing eight EP3 Guide sections that provide strategies for thriving programs. In collaboration with the American Association of Physics Teachers (AAPT) and the APS Committee on Minorities in Physics, EP3 conducted two site visits in 2022 to support the recruitment and retention of students at historically Black colleges and universities (HBCUs) and Black-serving institutions (BSIs). Professional development for departments came through Department Action Leadership Institutes. Thus far, approximately 130 faculty members, students, staff, and administrators from 19 institutions have participated in these year-long cohorts to begin the process of department cultural change needed to address existing challenges.

APS Bridge Program

The APS Bridge Program placed 25 new graduate students into 10 physics programs for the 2022 - 2023 academic year. The Program, now in its ninth year, has continued to focus on increasing the number of students from historically underrepresented ethnic and racial groups who complete PhDs in physics. Since inception, 368 students have been placed in physics programs, and 23 have successfully completed a PhD in physics. The current retention rate for students in Bridge Programs is 77%, much higher than the national average of 60% for physics doctoral programs.

Inclusive Graduate Education Network

The Inclusive Graduate Education Network (IGEN) is an NSF-funded partnership that includes dozens of societies, institutions, corporations, and federally funded laboratories. IGEN's goal is to dramatically increase the number of physical science doctorates earned by Black, Latino, and Indigenous students by advancing large-scale cultural change through a range of initiatives. In 2022, IGEN's Inclusive Practice Hub conducted 18 workshops on equity in graduate admissions engaging 543 participants, while its Research Hub produced several documents to help universities put research findings related to diversity, equity, and inclusion (DEI) into practice within their departments. IGEN activities positively impacted Bridge Programs across the country, with 78 new graduate student placements in APS, ACS, and AGU Bridge Programs in 2022. IGEN also engaged US national laboratories through facilitated Entering Mentoring workshops, in which the program's Center for the Improvement of Mentored Experiences in Research (CIMER) engaged 27 national laboratory representatives in "train-the-trainer" sessions.



Support for Students and Early Career Scientists

APS Virtual Career Fair

The 2022 APS Virtual Career Fair, held in September, had a total of 755 participants, including undergraduate and graduate students and early career scientists. This event included a job fair, a graduate school fair, a career and resume help desk, and industry networking sessions. Attendees had the chance to network with over 20 mentors from the APS Industry Mentoring for Physicists (IMPact) program.

Career Mentoring Fellows

APS continued to expand its Career Mentoring (CM) Fellows program in 2022 to a total of 53 volunteers specifically trained to provide career mentoring at the APS March, APS April, and Division of Plasma Physics (DPP) Meetings. CM Fellows receive training on physics employment statistics and career resources, as well as implicit bias and mentor training. CM Fellows provide feedback on student scientific presentations, hold one-on-one career mentoring appointments, and travel to physics departments to give career talks to students and faculty. CM Fellows provided valuable career mentoring to over 600 students and early career physicists in 2022.

Support for Innovation in Physics

APS Innovation Fund

APS awarded \$386,099 to two projects: "Journey to a Ph.D. through the lens of Black women in physics" and "Partnering with APS and AIP to empirically document the impacts of their cultural change initiatives." The 11 existing projects supported by the fund made positive gains in 2022, including the distribution of physics kits to young women across Africa, providing support to an international team to help foster new collaborations between African and US physicists who investigate electronic structure, and the continuation of the Physicists Coalition for Nuclear Threat Reduction.

Gordon and Betty Moore Foundation Fundamental Physics Innovation Awards

In 2022, funding from the Gordon and Betty Moore Foundation sponsored several research meetings for more than 100 student and early career physicists from Canada and the United States. These events provided an

opportunity for participants from both theoretical and experimental backgrounds to enhance their knowledge in a variety of areas, including precision measurements, high energy physics, nuclear physics, dark matter theory, particle physics phenomenology, astroparticle physics, quantum optics, and more.

Gordon and Betty Moore Foundation Experimental Physics Investigator Initiative

In 2022, APS received \$1.4 million from the Gordon and Betty Moore Foundation to enhance support for mid-career experimental physicists through a new program, the Experimental Physics Investigator (EPI) Initiative. The new program's purpose is to support high-risk, high-reward research opportunities for mid-career investigators who are applying unique problem-solving approaches within experimental physics and need additional support after their early career funding has dried up. Following a competitive application pool, the first cohort of investigators was selected to receive \$1.25 million each over five years, with awards spanning a range of topics, including quantized vortex lines in superfluid liquid helium and infrasound signatures of tornadoes. Through the APS Innovation Program, the EPI Initiative will continue to fund awards to mid-career physicists over the next decade.

Support for K-12 Educators

Physics Teacher Education Coalition

The Physics Teacher Education Coalition (PhysTEC) is a partnership between APS and the American Association of Physics Teachers (AAPT), funded by NSF. PhysTEC has helped colleges and universities transform their physics teacher education (PTE) programs by providing funding, professional conferences, resources, and other support. In the 2021 - 2022 academic year, PhysTEC graduates taught an estimated 600,000 students. PhysTEC-affiliated institutions across the country nominated their outstanding graduates, of whom 19 won local Teacher of the Year awards. Dr. Danielle Buggé was named the PhysTEC National Teacher of the Year; she teaches at the West Windsor-Plainsboro High School South in New Jersey and was nominated by Rutgers University.

PhysicsQuest

PhysicsQuest introduces middle school students to basic concepts in physics through fun experiments. In 2022, the Introduction to the World of Quantum kits reached more than 16,000 students. The program sponsored two workshops around World Quantum Day. PhysicsQuest received a Eucalyptus Foundation grant of over \$600,000

for 2023 - 2025. Teachers' responses showed a 19% increase in average confidence on understanding and teaching quantum topics.

Physicists To-Go

In fall 2022, Physicists To-Go updated its matching process to enhance access of K-12 classrooms to practicing physicists through engaging virtual visits. Throughout the 2022 - 2023 academic year, more than 120 classrooms participated in the program, which has also helped connect classrooms around the world to passionate scientists who can speak about career paths and cutting-edge physics topics. Physicists To-Go provides participating scientists with communications training to boost their impact.

Support for Public Engagement

International Year of Quantum Science and Technology

An international partnership of scientific academies and other major scientific entities continued to seek support for a resolution to declare 2025 as the International Year of Quantum Science and Technology (IYQ), for presentation at the 2023 General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the 2023 General Assembly of the United Nations. The year-long IYQ initiative is intended to celebrate the many impacts of quantum science on our world, from culture to advances in technology. The resolution has received support from more than 45 professional organizations representing over 60 nations from around the world.

Webinar Series: Engaging the Public Through Science

In the summer of 2022, APS hosted three workshops on public engagement. Topics included storytelling, addressing misinformation about science, and a panel discussion on ways to get involved in public engagement. Over 380 individuals participated.

Wiki Scientist Program

In partnership with Wiki Education, APS offered two training courses in 2022 to educate members on how to contribute to Wikipedia and Wikidata. Forty members participated across the two courses. More than 50% of participants received full scholarships to cover program costs, thanks to sponsorships from APS units. In total, participants contributed three new Wikipedia articles, edited more than 230 articles, and added more than 250

references. The edited articles have been viewed by more than 350,000 users, educating Wikipedia visitors about physics, while expanding the visibility of historically underrepresented physicists in the world's largest online encyclopedia.

Science Trust Project

Many APS members have previously reported feeling worried about science mis/disinformation and that they wished to play a more active role in countering disinformation. In response, APS launched the Science Trust Project, a member engagement initiative designed to equip scientists with the skills necessary to address science misinformation, in both their professional and personal lives. Through workshops and monthly online coffee hours, the project trains participants in cutting-edge communication skills and provides a platform for members to network and engage with each other.

“The APS Science Trust project helped me understand the value in speaking up against misinformation. It put me in touch with other like-minded individuals that offered their own stories in support. I hope to use the skills I’ve learned from the workshop to more effectively reach others.”

– Science Trust Project Participant

The Joint Network for Informal Physics Education and Research

APS launched a community of practice for members involved or interested in public engagement activities and programs. APS hosted two stakeholder meetings in 2022 to discuss the network's vision and to gain an understanding of the challenges and needs regarding public engagement in physics. In fall 2022, APS launched virtual coffee hours, a Slack space for idea and resource sharing, and a project website.

“[The] APS course on Wikidata was an exciting experience for me... the course explains how Wikidata is designed to be language-independent; therefore, both humans and machines can read it. After taking this course, I can now use Wikidata to share reliable and trustworthy scientific information and improve the understanding of people who rely on Wiki for information. This is one way of giving it back to society.”

– Wiki Scientist Program Participant

Support for Ethics Practices

In 2022, the APS Ethics Committee developed procedures to handle misconduct issues disclosed in the process of nominating members for APS honors and leadership positions. They considered how to provide transparency on APS policies and additional ethics resources to membership.

The committee reviewed complaints brought forth by APS membership on alleged ethical misconduct and presented two cases to the APS Board of Directors for revocation of honors. The Board determined that, in one of the cases, the revocation of a previously awarded APS Fellowship was warranted.

International Affairs

APS wants to ensure that all physicists — from anywhere on the planet — can participate in the APS community. More specifically, the Society is working to offer a “Welcoming Global Hub.” While APS does not presume to be the world’s physical society, it nonetheless aims to foster a welcoming community for the world’s physicists to connect with each other and advance their shared interests. APS believes that a welcoming global hub should provide:

- An opportunity for all physicists, regardless of race, nationality, ethnicity, gender, or sexual orientation, to contribute to and benefit from the global scientific enterprise
- An opportunity for physicists of diverse levels of achievement and prosperity to build and strengthen relationships across the global physics community
- Expanded partnerships and collaborations with other national physics societies and international physics organizations

APS also values inclusiveness and diversity — and a welcoming global hub underpins the Society’s mission “to advance and diffuse the knowledge of physics for the benefit of humanity.”

APS Response to the Russian Invasion of Ukraine

In response to the Russian invasion of Ukraine, APS issued a statement condemning the invasion and expressing support for Ukrainian physicists. APS also pledged to provide funds, membership, meeting registrations, and journal access to physicists whose lives have been disrupted by the invasion. The Society sent letters to Ukrainian science leaders expressing APS’s concern for losses of life and property. A special session at the 2022 March Meeting briefed attendees on APS actions in support of Ukraine. Attendees also shared stories about

their colleagues and loved ones who have been affected by the violence. A similar session at the April Meeting explored the history and background of the invasion and reviewed APS’s response to the crisis.

Support from APS includes working with the US National Academy of Sciences to facilitate short-term positions or scholarly visits that allow Ukrainian scientists to remain in the Eastern European region. Additionally, the Society provided matching funds for any of the membership units that wished to make donations to certain organizations supporting Ukrainian scholars who have been forced to flee Ukraine because of the invasion.

International Young Leaders Forum

APS hosted the second annual International Young Leaders Forum (IYLF) in 2022 as part of the APS Annual Leadership Meeting. Young physicists across the globe gathered virtually to share with APS leaders their needs from the Society and the challenges they face as graduate students and early career physicists. More than 50 young physicists participated in the International Young Leaders Forum, representing 27 nationalities and 19 countries, spanning six continents.

A panel of APS editors also spoke to participants, sharing insights into the challenges of publishing in peer-reviewed journals such as the Physical Review collection, and strategies for overcoming those hurdles.

APS-ICTP-EPS Travel Award Fellowship Programme

In partnership with the International Centre for Theoretical Physics (ICTP) and the European Physical Society (EPS), APS created the APS-ICTP-EPS Travel Award Fellowship Programme for early career scientists from developing nations. In 2022, the program — administered by ICTP — served scientists from Iran, Cuba, and Afghanistan. The program aids these scientists by

supporting short-term research visits to laboratories in Europe and North America. Fellowship recipients have the opportunity to return to their alma mater to conduct research at a familiar laboratory, to supplement their list of publications.

2022 March Meeting Satellite Sites Abroad

In coordination with the March Meeting in Chicago, APS piloted March Meeting Satellite Sites in South Africa, Rwanda, and India (ICTS-Bangalore and TIFR Mumbai). Events ranged from a five-day, in-person event with local speakers in Bangalore to a virtual gathering of physicists across East Africa, watching virtual sessions together, followed by group discussions of the physics presentations. The program brought local physics communities together under the support of the APS March Meeting and provided an opportunity for networking and sharing physics research.

2022 March Meeting Satellite Site Attendance

South Africa: **18**

ICTS-Bangalore: **187**

TIFR Mumbai: **40**

Rwanda: **10-25** online
each of the **5 days**

Supporting the Rights of Scientists Worldwide

APS is dedicated to advocating for the human rights of scientists globally. In October 2022, the APS Board Executive Committee endorsed a statement by the International Human Rights Network of Academies and Scholarly Societies condemning the crackdown on human rights in Iran, including the arrest of university students engaged in peaceful demonstrations. Similarly, APS leadership continued to advocate on behalf of Narges Mohammadi, an Iranian physicist and human rights defender — and recipient of the 2018 APS Andrei Sakharov Prize — who faces persecution.

African Physics Newsletter

In 2022, the African Physics Newsletter (APN) highlighted the rich physics research conducted continent-wide, including a special issue in March focused on climate change. APN is a quarterly publication created by and for physicists across Africa. The APN fosters connections throughout the African physics community and publishes news about physics in Africa as gathered and reported by an Editorial Board of African physicists.

Cooperation With the Chinese Physical Society

In September 2022, the Chinese Physical Society (CPS) and APS co-sponsored the International Forum on the 110th Birth Anniversary in Honor of Madame Chien-Shiung Wu. Madame Wu served as the President of APS in 1975. She was honored for her scientific achievements, as well as her efforts to promote scientific collaboration among the United States and China.

In November, APS joined CPS, the UK Institute of Physics, the German Physical Society, and the Physical Society of Japan to organize a session on large-scale facilities for science at the annual CPS Fall Meeting.

Engaging in Federal Advocacy

> **4,700** Connections with Congress: email, phone, and in-person

> **100** Meetings between APS members and members of Congress and/or their staffers during Congressional Visits Day

CHIPS and Science Act of 2022 — Key Legislation Signed Into Law

APS celebrated the sustained advocacy of its members who helped the CHIPS and Science Act of 2022 become law — regarded as the most important science and innovation bill in the US in more than a decade. The legislation significantly increased authorized funding for federal science agencies and included three key provisions that APS has pushed for: creating a stronger and more diverse scientific workforce, combating sexual and gender harassment in STEM, and addressing the helium crisis through increased recycling efforts.

Expanding Research Capacity at Emerging Research Institutions

APS was successful in advocating for a new category of academic institutions — Emerging Research Institutions (ERIs) — under the CHIPS and Science Act of 2022. The legislation creates a pilot program for partnerships between flagship research institutions and ERIs, which are institutions that receive less than \$50 million per year in federal research and development funds, to build research capacity at a broader range of colleges and universities. This will, among other goals, expand the research opportunities available to students at ERIs, which serve a majority of college degree-seeking students who come from underrepresented backgrounds.

Sexual Harassment

APS continued the fight against sexual harassment in STEM by advocating for the Combating Sexual Harassment in Science Act, which became law as part of the CHIPS and Science Act of 2022. The legislation authorizes research into sexual and gender harassment prevention and mandates the creation of uniform sexual and gender harassment policies and metrics to track their impact throughout the federally funded research ecosystem.

Helium Conservation

As part of the CHIPS and Science Act of 2022, APS helped address the helium crisis through a provision that requires the National Science Foundation and Department of Energy's Office of Science to establish programs that increase the scientific community's abilities to recycle and reuse helium — a critical and irreplaceable natural resource.

Congressional Visits Day

During the 2022 Congressional Visits Day, nearly 70 APS attendees of the APS Annual Leadership Meeting met with members of Congress and/or their staffers to advocate for APS's science policy priorities. During these meetings, they discussed funding for key federal science agencies, support for the Keep STEM Talent Act, support for appropriations to match the authorization levels for the National Science Foundation's Robert E. Noyce Teacher Scholarship program and championing legislation to improve the program's effectiveness in recruiting and retaining qualified K-12 STEM teachers, developing a national strategy for measuring methane emissions and a national database of methane emissions observations, and requiring a realistic testing and assessment program for US missile defense systems.

Methane Emissions

Informed by an APS-Optica joint report, Reps. Sean Casten and Peter Meijer introduced the Methane Emissions Mitigation Research and Development Act in the US House of Representatives. The bill establishes a research, development, and demonstration program in the US Department of Energy to support technologies and methods that detect, quantify, and significantly mitigate methane emissions. The APS-Optica report provided a technical assessment and federal policy recommendations to support emerging national and international efforts to reduce methane emissions. APS and Optica facilitated briefings on the report findings to federal agencies and congressional offices.

Visas and Immigration

Keeping the United States as a top destination for international STEM talent and strengthening our nation's STEM talent pipeline are top APS priorities. Two provisions to attract and retain international STEM talent passed the US House in the COMPETES Act of 2022. One allowed F-1 visa applicants to express "dual intent" — enabling individuals to indicate their interest to remain in the United States after completing their studies. The other created a pathway to permanent residency for individuals who earn advanced STEM degrees from US institutions. APS will continue advocacy work to ensure that these provisions are included in any significant immigration legislation.

Opposition to the China Initiative

APS was a leading voice in helping end the China Initiative, which had been a significant point of concern for some Society members and curtailed legitimate scientific collaborations. APS held community events to highlight the policy's negative impacts, launched a grassroots campaign to raise awareness with Congress, and arranged for APS leadership to meet with FBI staff and US Department of Justice officials to push for changes. APS will continue working to ensure that the United States provides a welcoming environment for all physicists.

APS Meetings

APS March Meeting 2022 was held in Chicago, Illinois and virtually, welcoming a record-breaking 13,484 attendees. The meeting featured more than 11,000 presentations, as well as a job expo, Wiki edit-a-thon, networking events, and more. Highlights included the Nobel Session: The Physics of Climate Change and Complete Systems and the Kavli Foundation Special Symposium: Why Physics is Fun, Stimulating, and Can Improve Lives.

Physicists also gathered in New York City and online for APS April Meeting 2022: Quarks to Cosmos. Organizers arranged a special session on the contributions of the late Steven Weinberg to the field, in addition to a variety of talks on neutrino physics and decarbonization strategies for addressing the climate crisis. A special session on the Ukraine-Russia conflict was also an important programming piece that week.

APS unit meetings rounded out a significant wealth of activity in 2022. From divisions to sections, every attending member spent meaningful time learning in their close peer groups. Of note, the 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics was held in Orlando, Florida; the 64th Annual Meeting of the APS Division of Plasma Physics took place in Spokane, Washington; the Fall Meeting of the APS Division of Nuclear Physics met in New Orleans, Louisiana; and the 75th Annual Meeting of the Division of Fluid Dynamics was held in Indianapolis, Indiana.



APS Membership

APS Honors

The 2022 APS Medal for Exceptional Achievement in Research was awarded to Elliott Lieb. Lieb and the recipients of the Julius Edgar Lilienfeld Prize and the George E. Valley Prize, Jr. were collectively honored in a brief documentary film on their careers and contributions to physics. The Lilienfeld and Valley prizes were awarded to Chang Kee Jung and Andrew Lucas, respectively. In 2022, APS bestowed more than 65 prizes and awards to outstanding members of the physics community.

Annual Leadership Meeting

In 2022, APS hosted the third Annual Leadership Meeting, bringing together APS members, volunteers, and leaders in a virtual meeting space to discuss important issues facing the scientific community and to celebrate some of the recent accomplishments in physics. Topics focused on research security, misinformation, and addressing global scientific challenges. Shirley Ann Jackson, president of Rensselaer Polytechnic Institute, and France Córdova, of the Science Philanthropy Alliance and former director of the National Science Foundation, spoke on the physics community's role in shaping the future.



Finance

DECEMBER 31, 2022

As APS returned to “normal” in 2022, meetings offered attendees in-person and hybrid participation options, open access publishing continued to grow, and membership remained steady. Although APS experienced a decrease in Total Net Assets from \$268.0 million to \$227.9 million in 2022, the organization remains healthy and viable. The decrease was mainly caused by market volatility, which resulted in a loss in the investment portfolio. Despite the reduction in net assets during 2022, APS has seen a cumulative increase in Total Net Assets from \$179.3 million to \$227.9 million since 2018. APS has successfully navigated other periods of market volatility and has always bounced back.

In 2022, APS reported \$70.7 million in operating income, but incurred \$71.2 million in operating expenses, resulting in a small net loss from operations of (\$519,000). The volatile investment market and changes in the value of APS’s investment in the American Center for Physics and its post-retirement health liability caused non-operating activities to result in a loss of (\$39.6 million). As a result, the total change in net assets for the year was (\$40.1 million).

Net Assets without Donor Restrictions are composed of \$156.4 million of undesignated assets and \$50.8 million of Board Designated Assets. Meanwhile, the Net Assets with Donor Restrictions increased from \$19.7 million at the end of 2021 to \$20.8 million at the end of 2022. Overall, APS had Total Net Assets of \$227.9 million as of the end of calendar year 2022.

Total Net Assets: \$227.9 Million

December 31, 2021 and 2022 (in Millions)

STATEMENT OF FINANCIAL POSITION

	2022		2021	
<i>Assets</i>				
Cash and cash equivalents	\$	24.2	\$	21.8
Investments, at fair value		221.2		249.1
Receivables		5.2		3.5
Prepaid expenses and other assets		3.0		3.3
Equity interest in American Center for Physics		5.0		5.2
Land, building, and equipment, net		0.6		0.7
Beneficial interest in perpetual trust		0.6		0.7
Right-of-use asset-leases, net		2.4		—
Asset held for sale		—		9.6
TOTAL ASSETS	\$	262.3	\$	294.5

Liabilities and Net Assets

Liabilities

Accounts Payable and Accrued Expenses	\$	7.8	\$	7.6
Deferred Revenues		17.3		9.9
Liability for post-retirement medical benefits		6.7		9.1
Future lease obligations		2.3		—
TOTAL LIABILITIES	\$	34.4	\$	26.6

Net Assets

Without Donor Restrictions

Undesignated	\$	156.2	\$	198.7
Designated by Board		50.8		49.6
Total donor restrictions	\$	207.1	\$	248.3

With Donor Restrictions

	\$	20.8	\$	19.7
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TOTAL NET ASSETS		227.9		268.0
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TOTAL LIABILITIES AND NET ASSETS	\$	262.3	\$	294.5
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STATEMENT OF ACTIVITIES

	2022		2021	
Operating Revenues	\$	70.7	\$	63.4
Operating Expenses		71.2		59.8
Income from Operations		(0.5)		3.6
Investment Income/(Loss)		(42.0)		27.6
Other Non-Operating Income/(Loss)		2.4		(4.1)
		(39.6)		23.5
CHANGE IN NET ASSETS	\$	(40.1)	\$	27.1

Philanthropic Partners

Total raised: **\$2,519,175**

3,261 Total Donors

574 New Donors

64% of 2021 Donors made a donation in 2022 to an APS program

\$508,919.86 bestowed in APS Prizes and Awards

APS would like to express its heartfelt gratitude to its members and donors for their invaluable contributions. Your unwavering support, whether through your time or financial assistance, has been instrumental in helping APS achieve its mission of advancing and disseminating knowledge in the field of physics. We are deeply grateful for your commitment to building a vibrant and inclusive physics community that will benefit future generations. Thank you once again for all that you have done for APS.

With the support of our donors, we have been able to fully fund the Neil Ashcroft Early Career Award, increase the award level for the Max Delbruck Prize in Biological Physics, and establish the Chang Ryu Travel Grant.

If you would like to continue to support the programs at APS that matter to you, you can make a donation at any time of the year by visiting aps.org/donate.

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The American Physical Society's Legacy Circle recognizes thoughtful benefactors who have made a provision for APS in their estate plans. These gifts carry on a giving legacy of more than 125 years to support the APS mission of advancing and diffusing the knowledge of physics.

APS sincerely thanks the following members and friends for supporting a bright future for physics, the scientific community, and humanity at large through planned giving. Bequests that have already been realized are noted in **bold**.

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