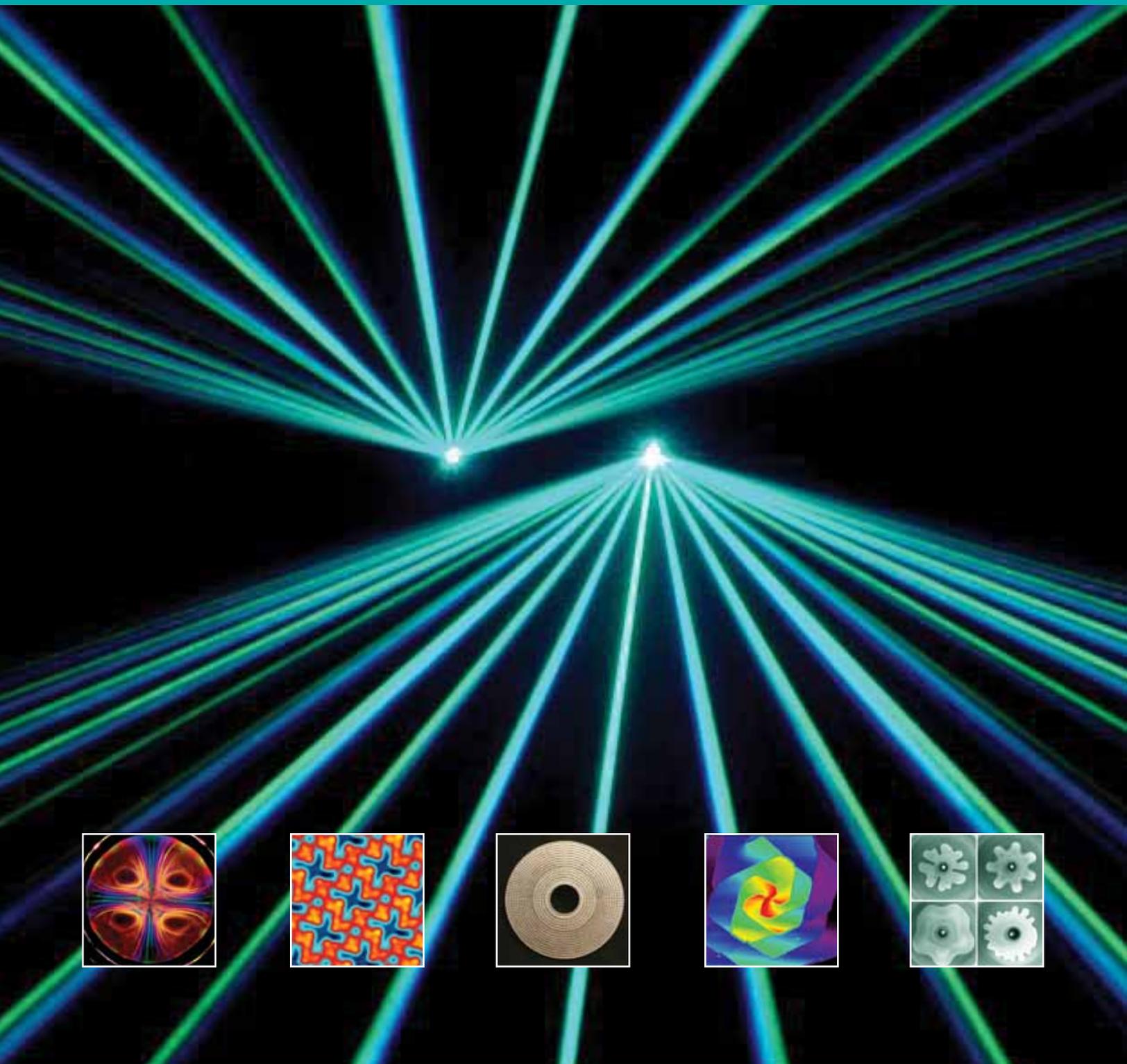
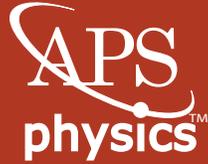


AMERICAN PHYSICAL SOCIETY



2 0 1 0   A N N U A L   R E P O R T



## THE AMERICAN PHYSICAL SOCIETY STRIVES TO:

**Be the leading voice for physics and an authoritative source of physics information for the advancement of physics and the benefit of humanity;**

**Collaborate with national scientific societies for the advancement of science, science education, and the science community;**

**Cooperate with international physics societies to promote physics, to support physicists worldwide, and to foster international collaboration;**

**Have an active, engaged, and diverse membership, and support the activities of its units and members.**

*Images: Background on cover: Argon ion laser through diffraction gratings (Tribal Existence Productions). Inset 1: A Hele-Shaw cell formed from two 100 mm circular glass windows is illuminated by 36 color LEDs around the cell's perimeter, from which the light is scattered by the ferrofluid particles in the high-field regions of the two magnets behind the cell (M. Snyder *et al.*, Murray State University). Inset 2: Homochiral layer of the normally achiral molecule copper phthalocyanine grown on a silver surface (A. Mugarza *et al.*, Phys. Rev. Lett. **105**, 115702 (2010)). Inset 3: This acoustic "invisibility cloak" for ultrasound waves is the size of a DVD (S. Zhang *et al.*, Phys. Rev. Lett. **106**, 024301 (2010)). Inset 4: Gallium nitride surface grown by molecular beam epitaxy (K. Wang, Ohio University). Inset 5: Viscous fingering patterns of air bubbles in oil contained between two closely-spaced horizontal plates into which the air is pumped from the center (A. Leshchiner *et al.*, Phys. Rev. E **81**, 016206 (2010)). Page 2: A simulation offers a glimpse of antimicrobial peptides and lipids in the midst of self assembly (H. Wang, Emory University). Page 3: See caption for Inset 1. Page 4: Phase distribution for a Bose-Einstein condensate in a ring-shaped lattice (D. Jezek *et al.*, Phys. Rev. A **83**, 013629 (2011)). Page 5: Microscopic polymer nanobristles self-organize into helical clusters after controlled evaporation of the fluid in which they were submerged (J. Aizenberg, Harvard University). Page 6: A peppercorn-sized capsule filled with hydrogen fuel is lowered into the center of a fusion reactor (National Ignition Facility). Page 7: See caption for Inset 3. Page 8: Simulation of scanning gate micrograph of "scarred" states of an open quantum dot (A. M. Burke *et al.*, Phys. Rev. Lett. **104**, 176801 (2010)). Page 9: A spiral wave in an excitable medium orbits around a localized inhomogeneity (V. N. Biktashev, *et al.*, Phys. Rev. Lett. **104**, 058302 (2010)). Page 10: Two holes in the bottom of a bucket lead to only a single vortex in (dyed) water that flows out through them (J. Varkovitzky *et al.*, University of Colorado, Boulder). Page 11: Rings left behind as a droplet of a suspension of fluorescent PMMA particles evaporates (Byung Mook Weon and Jung Ho Je, Phys. Rev. E **82**, 015305(R) (2010)).*

## FROM THE PRESIDENT



**Throughout 2010, the American Physical Society was at the forefront in supporting the advancement and diffusion of the knowledge of physics and in creating opportunities for physicists to have a beneficial impact on society. APS is in excellent health: membership reached an all-time high of more than 48,000; attendance at meetings rose; articles published in APS journals grew and the publishing operation continued to realize greater cost savings. Society finances improved, with reserves rebounding from the 2008 crash.**

We celebrated the 50th anniversary of the laser together with partners OSA, IEEE-Photonics and SPIE by organizing LaserFest, a year-long celebration of this epoch-making discovery. The Outreach Department used the laser as the central theme of its efforts to excite children about physics, while the Public Affairs Office used it as a timely example of the transformational impact of basic research not just on science and technology, but also on daily life and the world economy.

According to NOAA, 2010 was the year with the warmest global average temperature on record, and discussion within APS on the subject of climate change was no less heated. The APS Council adopted an addendum to the 2007 APS statement on climate change, but only after obtaining broad member input via the web. Two enthusiastically-supported petitions to form a Topical Group focusing on the physics of climate, as opposed to public policy, were received. A new topical group with this mandate will probably start to function this year.

The *Physical Review* journals are central to the APS mission of “diffusing the knowledge of physics.” They also provide significant support for other important programs of the Society. While the Society supports the aims of Open Access to make journal content freely available, our financial stability is based on journal subscriptions. In 2010, APS took an important step toward OA in preparing for the launch of *Physical Review X*, an online-only, open access, author-pays journal that aims to capture the growing body of broad, interdisciplinary physics and applications research that does not fit easily into our existing journals. We announced that the contents of our journals will be made freely available through US public libraries, and more than 500 libraries have signed on. Finally, the decision was made to undertake a major renovation and expansion of the APS editorial offices in Ridge, NY.

As cutting-edge physics becomes more global, APS must become more fully international in scope. The majority of papers published in *Physical Review* and a quarter of our non-student members now come from abroad. In 2010 the membership approved an amendment to the APS constitution increasing the number of International Councilors from one to four. We also began a process of recruiting a network of “International Friends of the APS,” to engage non-US members in more active roles and to give APS more visibility outside the U.S.

New challenges lie ahead. As 2010 closed, the political necessity of deficit reduction put science funding under extreme pressure. APS continued its leadership role in promoting scientific research as crucial to the long-term prosperity of the nation. However, it appears that it will be most effective if individual APS members engage directly with their congressional representatives and their staffers. APS has always relied on the impressive energy and dedication of its members to accomplish its goals for societal impact. In order to meet the current challenge, APS members will have to take this volunteer energy to a new level.

A handwritten signature in black ink, reading "Curtis G. Callan, Jr." in a cursive style.

Curtis G. Callan, Jr.  
APS 2010 President



## RESEARCH PUBLICATIONS

**Better access to more information characterized almost every journal development in 2010.**

In early January 2010 APS announced that all of the APS journal content would henceforth be self-hosted. With the entire record of the journals, from 1893 to the present, now residing on a single platform run by the APS Editorial Office, the door opened for an array of new services that will lead to a more uniform experience for readers, authors, referees and APS members as well. The critical first step was to establish APS journal accounts, through which users can enter and update their own information and track their varied activities in the journals. For APS members, these accounts may also be used for membership services, including renewal, and information on APS meetings and programs.

By year's end, 42,000 users around the world had registered for journal accounts, which, among other things, enabled them to access the revamped referee server released in November 2010. The updated server aids referees in the reviewing process by allowing better access to instructions from the editor, supplemental material, and past correspondence on all of their referrals. In addition, referees can save their in-progress reports and return later to complete them. Another application for updating expertise and contact information for referees and authors was launched late in the year. Journal accounts will also be used to track author and referee contributions from institutions that subscribe to the journals, so that these contributions can be factored into an institution's subscription pricing.

Early in the year a new portal for librarians was released, with easy navigation, enhanced subscription information, and logins to get industry-standardized usage statistics for APS journals to which their institutions subscribe.

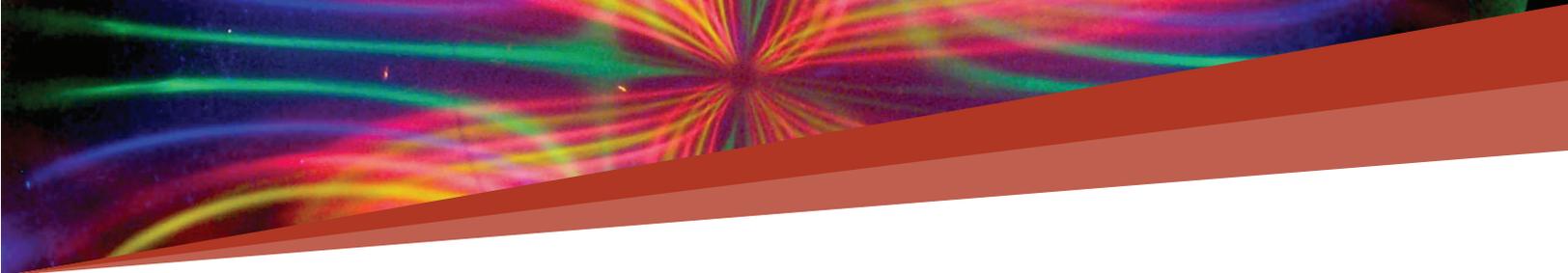
In the middle of last summer, APS announced the availability of its journal collection to on-site users in public libraries in the United States, upon registration and provision of the applicable IP addresses. This ground-breaking program is designed to expand access to the journals in response to the argument that the public deserves to be able to see the research that its tax

money has funded. The US Library of Congress was the very first such subscriber, and by year end 573 public libraries, large and small, followed. Expansion of the program to comparable library systems in other countries, and/or to high schools in the US is contemplated.

Full journal subscriptions may be beyond the means of small industries or high tech start-ups, but their researchers still want access to selected articles in the APS journals. Pay-per-view and article "packs" helped, and now an experimental program with the DeepDyve online rental service provides another option. Through DeepDyve, users have the option to rent individual articles for a 24-hour period starting at just \$0.99, with higher volume and longer term plans available.

Throughout 2010, with the support of the Publications Oversight Committee and the APS Executive Board, staff groups worked to develop the scope and structure for a new open access journal, Physical Review X. Funded exclusively by publication charges, the new journal encompasses all fields of physics including those that have not had a convenient home in the existing journal structures. Jorge Pullin of Louisiana State University was selected as the founding Editor of PRX, and Ling Miao, a current PRL editor in the Ridge office, will be the Associate Editor. A call for papers is expected in March 2011 with the first published articles in the fall of the year.

With office and meeting space already at a premium at our APS Editorial Office in Ridge, Long Island, NY and with submissions holding strong, and new projects and products in the works, plans were made in 2009 for a partial second floor expansion and reconfiguration of the office space. In 2010, architectural plans were finalized, and following competitive bidding a construction contractor was selected. A multi-stage permitting process is nearly complete, and construction is scheduled to start in spring of 2011. Staff and operations will occupy the structure throughout the project, and steps will be taken to maintain the usual round-the-clock access to the journals for researchers everywhere. ■



## SCIENTIFIC MEETINGS

**The annual March and April meetings were again very successful, both in terms of program content and attendance.**

### MARCH MEETING

The March Meeting, held in Portland, Oregon was the largest in its history. More than 7,600 people attended, with more than 7,300 papers being presented in invited, contributed and poster sessions. The total number of attendees included 2,900 students and more than 1,800 international attendees. Student activities and support continue to be offered and enhanced each year. More than 900 new APS members were gained during the March Meeting registration process.

Several pre-meeting programs were held at the March Meeting including a DPOLY short course, eight tutorials and three workshops; one on strategies for high-quality effective educational materials, one on professional skills development for women physicists, a career workshop for students, a workshop on opportunities in energy research, and a workshop on writing an effective op-ed. Several special sessions were held during the meeting, including evening sessions entitled: Fuels for the Future, a public lecture: The Physics of Superheroes, Physics Community Outreach: Physics with a Bang, and the Nobel Prize Session, featuring one of the 2009 Nobelists, George E. Smith.

### APRIL MEETING

The 2010 April Meeting joined the winter meeting of the American Association of Physics Teachers (AAPT) in Washington, DC with a joint theme “Physics for Our Nation’s Future.” To accommodate both organizations, the date of the meeting was moved to February. The

April program consisted of approximately 200 invited talks and 700 contributed talks. A number of sessions were co-sponsored by APS and AAPT. More than 1,500 people attended, including more than 400 students. Student activities and support at the April meeting have been increasing every year. Despite back-to-back blizzards which hit Washington DC just before the meeting, only 20 registrations were cancelled. The plenary talks, added to the program several years ago, continue to be very well attended. The Kavli Foundation sponsored a joint Plenary Session “Re-Energizing America’s Focus in STEM Education”, organized together with members of APS, AAPT, the National Society of Black Physicists and the National Society of Hispanic Physicists. In addition, several special sessions were held, including a Town Hall Meeting: What Physicists Can do to Help Solve the Energy-Climate Problem, and a public lecture on five decades of laser spectroscopy. More than 140 new members were gained during the April Meeting registration process.

### UNIT MEETINGS

Throughout 2010 there were many scientific meetings sponsored by APS units, including the meetings of the Divisions of Nuclear Physics (DNP), Atomic, Molecular and Optical Physics (DAMOP), Fluid Dynamics (DFD), and Plasma Physics (DPP), as well as a number of meetings sponsored by Topical Groups and Sections. ■



## PUBLIC AFFAIRS

**Legislatively, 2010 was a difficult year, but the year-end passage of the America COMPETES Reauthorization Act, for which the APS Office of Public Affairs advocated, marked a significant victory for physical science funding.**

The APS Public Affairs Office scored a number of significant successes during a very challenging year in which science, usually a non-partisan issue, found itself caught up in the political wrangling that affected many public policy issues during the run-up to the November elections. The United States Senate almost ceased to function for most of the year until it finally passed a flurry of legislation in a post-election lame-duck session. The House of Representatives, usually an exemplar of legislative fervor, broke with tradition and for the first time in decades opted not to take up either a Budget Resolution or any of the twelve appropriations bills needed to fund the Fiscal Year 2011 activities of federal departments and agencies. Instead, as the October 1 deadline approached, legislators elected to put the federal government on a Continuing Resolution, holding spending at the previous year's (2010) level and putting on ice all science increases, which the White House had proposed and for which APS had advocated throughout the spring and summer.

As the 111th Congress was wrapping up its work just prior to Christmas, Senate Republicans successfully threatened to filibuster an Omnibus Appropriations Bill that would have funded agencies for the balance of the fiscal year. At the same time they also rejected extending the Continuing Resolution for the entire fiscal year. As a result lawmakers left town merely allowing the CR to remain in effect until March 2011, derailing much of the planning and execution by science agencies and vitiating months of APS advocacy work.

Although science appropriations foundered, APS gained a measure of satisfaction, when the Senate passed the America COMPETES Reauthorization Act just before it adjourned sine die on December 23rd. Earlier in the year, the House had passed its version of the bill, although not before fiscal conservatives had succeeded in using a poison pill to temporarily stall the legislation.

The opponents had adopted their rejectionist stance, even though the COMPETES Act – which authorized increases for the Department of Energy's Office of Science, the National Institutes of Standards and Technology's Core Programs and the National Science Foundation's research and education programs – was consistent with the bipartisan visions of the Bush Administration's 2006 American Competitiveness Initiative and the Democrats' 2005 Innovation Agenda.

Working with a number of science coalitions, among them the Task Force on American Innovation, the Coalition for National Science Funding and the Energy Sciences Coalition, APS assisted Republican moderates and Democrats in their quest to generate the necessary votes for passage. More than 2000 APS members made their views known during the course of the yearlong debate: through petitions to members of Congress and letters to the editor and op-eds in newspapers covering key congressional districts, among them The Salt Lake Tribune, The Buffalo News, The Lincoln-Journal Star, The Arizona Star and The Honolulu Star-Advertiser. The advocacy efforts contributed significantly to the bill's positive outcome.

As lawmakers began drafting the COMPETES Reauthorization Act early in the year, APS became aware that the White House was urging Congress to include language on "Open Access" that had the potential to endanger APS's ability to provide a stable financial basis for its publishing operations. Through timely intervention, the Washington Office succeeded in raising congressional awareness about the important role scientific publishers play in conducting peer review and the costs associated with this vital activity. Working with the offices of Representative Rush Holt (D-NJ 12th) and Senator Jay Rockefeller (D-WV), APS secured language that instructed the newly established inter-agency Public Access Committee to "take into consid-



eration the role that scientific societies play in the peer review process in ensuring the integrity of the record of scientific research, including the investments and added value that they make.”

Through the Panel on Public Affairs, APS also attracted considerable attention with the release of two studies: “Technical Steps to Support Nuclear Arsenal Downsizing” in March and “Integrating Renewable Electricity on the Grid” in November. Congress and the Administration embraced a number of the “Downsizing” recommendations, and the report received media coverage on National Public Radio and the Global Security Newswire, as well as in *Nature* magazine. Al-

though planned legislation to establish a national Renewable Electricity Standard (RES) ultimately stalled in the Senate, the APS “Grid” study, which spoke to the issue, received positive coverage on The New York Times Web site, the ScienceInsider blog, as well as on numerous other online news sites. An op-ed touting the report’s recommendations also appeared on the Huffington Post blog. The findings of the “Grid” study should prove relevant if the 112th Congress returns to the national RES issue, as is widely expected. As 2010 drew to a close, the Washington Office began planning for a February 2011 release of a third POPA report on “Energy Critical Elements.” ■

## EDUCATION

**The Physics Teacher Education Coalition (PhysTEC), APS’s flagship education project, continues to grow, adding five new funded sites.**

**T**he Physics Teacher Education Coalition (PhysTEC) continues to be the APS’s flagship education program. PhysTEC is a collaborative project with the American Association of Physics Teachers (AAPT) and is supported by a \$6.5 million award from the National Science Foundation (NSF) and contributions from APS members and private foundations. The mission of PhysTEC is to improve and promote the education of future physics and physical science teachers. The project supports selected universities to develop their physics teacher preparation programs into national models by employing local master teachers, increasing teacher recruiting efforts, developing early teaching experiences, improving content and pedagogy courses, and fostering collaboration among physics departments, education schools, and local school districts.

In 2010, the project welcomed five new supported sites: California State University, Long Beach; Chicago State University; Middle Tennessee State University; Towson University; and University of California, Davis. In addition to these five, twelve previously supported sites have sustained significant project activities beyond the end of their funded periods. In Fall 2010, the project

solicited a new round of proposals, and plans to support six additional institutions starting in 2011; another solicitation is planned for 2012. A related project—the NSF-funded PhysTEC Noyce Scholarship program—awarded thirteen scholarships of \$15K each to future physics teachers at PhysTEC institutions, and will provide about 25 more over the next three years.

The broader coalition of institutions involved in improving physics teacher education has grown to more than 225 members, and the project supports these universities through conferences, workshops, networking, and advocacy. The 2010 PhysTEC Conference was held in Washington, DC in conjunction with the APS “April” Meeting and AAPT Winter Meeting, and attracted over 100 participants; the 2011 Conference will be held jointly with the UTeach Institute in May in Austin, Texas. The project sponsored workshops on the University of Colorado’s Learning Assistant program, and on Pedagogical Content Knowledge at Rutgers University. The joint APS-AAPT-American Institute of Physics Task Force on Teacher Education in Physics released a report synopsis in early 2010, and will release its full report in 2011. For more information on PhysTEC, see [PhysTEC.org](http://PhysTEC.org).



Beyond PhysTEC, APS engages in a variety of activities to promote physics education at all levels ([aps.org/programs/education](http://aps.org/programs/education)). A partnership with AAPT and the American Astronomical Society continues to offer New Faculty Workshops, which help faculty members who are beginning their teaching careers learn about their role as educators and manage their numerous professional responsibilities. The workshops reach nearly 40% of all new faculty in physics and astronomy, and are funded by NSF's Division of Undergraduate Education. APS meetings included programs called Future of Physics Days, which gave a record number of 450 undergraduates an opportunity to present research, network, and experience a professional physics meeting; and Teachers Days, which provided professional development for teachers within driving distance of the meetings. APS also released two

curricular units for K-12 educators—one on lasers and one on nuclear forensics. APS is stepping up efforts to increase the number of physics majors, and collaborates with AAPT and the Society of Physics Students on a campaign to encourage high school students to take physics. APS also released two educational posters in 2010—one on the “top ten” reasons to take physics, in partnership with AAPT, and one on gravitational waves, with support from LIGO.

Physics InSight, a free hallway-display slideshow ([aps.org/careers/insight](http://aps.org/careers/insight)) promoting physics education that reveals the human side of physics, continued to evolve, and now includes more physics employment statistics, as well as information on APS scholarships and programs. The slideshow is updated several times each semester with new physicist profiles, research results, and physics career facts. ■

## INTERNATIONAL AFFAIRS

**APS launched new programs to serve its international members and created ongoing physicist exchanges with new international partners.**

Nearly 25% of APS members (excluding students) are based outside the United States. During 2010, the Society undertook several new efforts to better serve APS members living beyond U.S. borders. First, Society members voted overwhelmingly to pass an amendment to the APS Constitution increasing the international representation on the APS Council from one councilor (currently) to four councilors, phased in over the next four years. This will help to ensure that international perspectives are brought into the Society's deliberations. Second, building on our nationwide network of “APS Friends”, we are establishing an “International Friends” network—key contacts across the world who have volunteered to serve as the Society's “ambassadors” at their institutions, helping to plan APS activities and programs internationally and communicating with APS members in their local communities. International Friends are regarded as valuable sources for advice and insight as we expand our international activities.

This past year, the APS partnered with other national physics societies on a number of new initiatives. We signed a Memorandum of Understanding with the Sociedade Brasileira de Física (SBF) establishing a new exchange program for physics graduate students and professors. Through the Brazil-U.S. Physics Student Visitation Program, graduate students can apply for travel funds to pursue a breadth of opportunities in physics, such as attending a short-course or summer institute; visiting with a professor in his/her field of study; working temporarily in a lab; or any other opportunity that the student and professor feel is worthy of travel support. The Brazil-U.S. Professorship/Lectureship Program funds physicists in Brazil and the United States wishing to teach a short course or deliver a lecture series in the other country.

Similarly, the Society continues to partner with the Indo-US Science and Technology Forum (IUSSTF) toward exchanges of graduate students and professors



between the United States and India. This successful program, which began three years ago, has fostered opportunities for developing long-term collaborations.

The Society enabled collaborative research between APS members and developing country physicists through its International Travel Grant Award Program (ITGAP). In 2010, six awardees received travel awards to visit an international collaborator.

In partnership with the UK Institute of Physics (IoP) and the International Centre for Theoretical Physics (ICTP), the Society co-sponsored a workshop held at ICTP (in Trieste, Italy) attended by approximately 60 physicists and engineers from developing countries who were interested in learning entrepreneurial skills to commercialize their scientific inventions. Such an educational program, focusing on innovation, generation and protection of intellectual property, technology transfer and product commercialization, is missing in many of the developing countries.

The Society continues to bring international physicists to speak at APS meetings through both the Marshak and Beller Lectureship Awards, which support distinguished physicists from the developed and developing countries respectively. In 2010, the Marshak Awardee came from the Palestinian Authority, and the Beller Awards were presented to physicists from Israel and France.

The APS also supports physicists in the Middle East through the SESAME project—the synchrotron light source in Amman, Jordan, that brings together physicists from Arab countries and Israel for international scientific collaboration. By enabling Middle Eastern physicists to avail themselves of training opportunities, the APS and other partnering societies are building a synchrotron “user community” in the region. To support this, the Society had established the SESAME Travel Award Program in partnership with the European Physical Society (EPS), the UK Institute of Physics (IoP), and the German Physical Society (DPG). Just this past year, the American Chemical Society joined the program, expanding the available travel funds for Middle Eastern physicists.

APS continued to work with US government leaders to ensure that national security concerns do not unduly restrict international scientific collaborations. APS joined other scientific and higher education organizations to meet with State Department officials regarding visa processing.

Through the efforts of APS volunteers and partnership in the AAAS Science and Human Rights Coalition, a network of scientific societies concerned about human rights, the APS advocated for the human rights of scientists in the U.S. and around the world and responded to calls to assist those scientists in need. ■

## CAREERS

**The APS online career center ([careers.aps.org](http://careers.aps.org)) saw a 20% increase in new resumes posted (3,272 total), and a 17% increase in posted jobs, for a total of 515.**

**T**he APS Committee on Careers and Professional Development (CCPD) did a significant amount of work on the content and organization of the careers website ([aps.org/careers](http://aps.org/careers)), a major career resource for physicists. This included reorganizing the popular Professional Development Guide, and adding several new pieces of content, including an “Economics of a Physics Education” document that provides a cost analysis of pursuing a physics degree versus going into the workforce directly from high school.

APS sponsors career fairs and workshops at our national meetings to help members improve their resume and interview skills. These included a careers in physics luncheon, a career panel of physicists working in diverse areas (national labs, science policy, and patent law), a graduate student Q&A, and awards sessions recognizing winning student presenters. APS launched a free webinar series to provide education, research, and career information for graduate and undergraduate students. Past webinars can be viewed at [aps.org/careers/guidance/webinars](http://aps.org/careers/guidance/webinars). ■



## INFORMING THE PUBLIC

**LaserFest, a year long celebration of the 50th anniversary of the first working laser, was the focus of many APS outreach activities in 2010.**

APS is one of the Founding Partners of LaserFest, in conjunction with the Optical Society (OSA), SPIE, and IEEE Photonics. The outreach department engaged in many of the LaserFest activities, including maintaining the LaserFest website [www.laserfest.org](http://www.laserfest.org), administering LaserFest on the Road mini-grants to outreach teams nationwide, and participating in a large number of meetings and conferences worldwide. As part of LaserFest APS teamed with AAPT and AIP to participate in the first annual USA Science and Engineering Festival held on the National Mall. The “Laser Haunted House” was a huge hit, at times requiring an hour wait to get in. LaserFest was an extremely successful outreach program, reaching millions of people, both scientists, the general public, and policy makers as well.

At its November 2010 meeting, the APS Council approved the formation of a new forum, the Forum on Outreach and Engaging the Public (FOEP). FOEP will increase the public’s awareness of physics while also providing a “home” within APS for the large number of physicists currently involved in a diverse array of outreach and public engagement activities. The idea emerged from the APS Committee on Informing the Public (CIP), which felt that there is strong APS member interest in this area, and that this forum will be beneficial to the physics community.

In 2009 the public outreach department updated one of its largest programs, PhysicsQuest, adding a comic book about a female super hero, Spectra, with laser powers. PhysicsQuest is a kit-based program for middle school students that reaches over 13,000 classrooms each year. In 2010 APS continued with the comic book format, focusing this year on force and motion. In this latest edition Spectra will have to escape from General Relativity’s faulty experiment and still get to the middle school dance on time. The comic has been enthusiastically received by teachers and students.

This summer APS was the first professional society to exhibit at the world’s largest comic book convention,

Comic-Con international. The Comic-Con organizing committee was so impressed with the APS comic book series focusing on physics, that the normal 4-year wait to get exhibit floor space was waived. Over 125,000 people attended the convention each day and the outreach team distributed over 1.5 tons of APS comic books to attendees. APS received very positive reviews from professional comic book reviewers as well as coverage in Wired, IMDB and several local newspapers. To watch a short video of APS’s adventures at Comic-Con, visit the August 17, 2010 Physics Buzz blog post.

In 2010, the outreach website, PhysicsCentral, was updated with a whole new look and feel. It is now possible to subscribe to the podcasts through iTunes. The outreach blog, Physics Buzz, is now prominently featured on the website. Recently the blog had over 40,000 hits in one weekend. PhysicsCentral is updated daily with stories about current research, profiles of people in physics, physics pictures and at-home experiments.

Media relations efforts at APS focus on increasing coverage of physics research in the popular media, and helping science journalists stay informed about the latest physics news. Our Media Relations office fields inquiries and assists members and staff interacting with the media, in addition to alerting journalists to important physics news and policies. The bulk of APS media relations activities involve traditional news outlets such as newspapers, magazines, radio programs and television. However, an increasing portion of its activities focus on reaching out to informal media outlets such as blogs, online-only news services and web pages. Vehicles for disseminating physics news include email alerts, embargoed press releases distributed through high quality press release distribution services such as Eurekalert, APS Physics News Ticker blog (a compilation of advance summaries of hundreds of APS journal papers for professional science journalists), and press releases announcing APS news originating from sources other than the our journals (Society statements, meeting news, etc.).



Among the major sources of physics news are stories originating from presentations at the APS annual March and April meetings. Meeting news is disseminated through the APS pressrooms onsite at the annual meetings. In addition, virtual pressrooms assembled for the annual meetings allow reporters to cover the news in the event that they are unable to attend in person.

For the past three years, the Media Relations office has hosted a highly successful science writing internship. The intern's chief responsibilities include daily updating the APS blog Physics Buzz, tracking physics

in the news, and writing press releases. Several former interns continue to contribute to APS media relations efforts and public outreach as freelancers writing stories and producing podcasts for Physics-Central. APS continues to distribute the APS Physics Newsbrief, a weekly newsletter compiling the leading physics stories appearing in popular news media such as the New York Times, Los Angeles Times, MSNBC, Fox News, Science News, and New Scientist. The Newsbrief is available as a free benefit to subscribing APS members. ■

## DIVERSITY

**2010 was a critical year for defining the new APS Minority Bridge Program, which aims to increase the number of underrepresented minorities who receive PhDs in physics.**

Thanks to private donations, the Society has continued its very successful Minority Scholarship Program for undergraduate physics majors. In 2010, 41 minority students received scholarships through this program. There continues to be a strong mentoring effort in this program with students being mentored by the Committee on Minorities, APS staff, and faculty at their institutions.

2010 was a critical year for defining the new APS Minority Bridge Program ([aps.org/mbp](http://aps.org/mbp)), which is aimed at increasing the number of underrepresented minorities who receive PhDs in physics. APS staff visited more than a dozen minority-serving institutions, talked with over a hundred students, and brought together groups from across the country to discuss potential program elements to address the shortage of minority physics PhDs. More than two dozen institutions have been involved, including top-ranked doctoral institutions that graduate a quarter of US physics PhDs annually. The program steering committee, chaired by 2009 APS President Cherry Murray, has been working with APS staff to outline the critical issues, and build the national case for addressing the barriers faced by many of these students.

A proposal for significant funding to support and coordinate the many facets of a successful Minority Bridge program is being developed by APS staff, with input and advice from the MBP steering committee.

The Committee on the Status of Women in Physics (CSWP) held an NSF-funded workshop for post-doctoral associates and women faculty at the March meeting (the workshop scheduled for February was canceled due to weather). A total of 39 women physicists participated. Participants worked in small groups with professional facilitators to improve their communication and negotiation skills. APS anticipates providing these workshops with additional NSF funds for the next several years.

APS continued to conduct a series of "Gender Equity Conversations" at an additional eight institutions throughout the United States. These informal visits spark discussions about issues that impact women (e.g. childcare), and help departments formulate action plans for improving gender equity. APS also awarded two Blewett Scholarships to women physicists in the early stages of their career. These scholarships enable women physicists who have had to interrupt their careers for family reasons to resume their physics research. ■



## MEMBERSHIP

**With a gain of over 300 members, APS membership has hit a new record — over 48,000! The official count for this year is 48,263.**

In 2010, growth was seen mainly in the Student member category but also included a promising increase of almost 100 members in the Junior category. Individuals who receive their terminal degree within the previous 12 months are eligible for up to three years of Junior membership which offers reduced membership dues and meeting fees. There also continues to be a significant international cohort with approximately 10,300 members, or 21%, from outside the US.

APS units continued to play an important part in the Society's growth and success in 2010, with the addition of another Forum. The Forum on Outreach and Engaging the Public (FOEP) was approved by APS Council and efforts are underway to inform APS mem-

bers about the new Forum and to encourage members to join. This brings the total number of divisions, topical groups, sections and forums to 41.

The "Friends of APS" program, started in 2000, currently has 230 participants worldwide. "Friends" are APS members who have agreed to help facilitate communication with current and potential members at their institution. Throughout the year, information is sent to them regarding membership, programs, and benefits to be shared with colleagues and students. The "Friends" program is a useful tool in both retaining and attracting APS members. In 2010, APS expanded its "Friends" program to include 76 international members. ■

## PRIZES, AWARDS, FELLOWSHIPS

**APS bestowed 41 prizes and awards on 65 individuals, covering a broad range of physics research as well as contributions by physicists to the physics community and to society at large. Eighteen prizes were presented at the March Meeting, 14 at the April Meeting, and 9 at various divisional meetings throughout the year.**

In late 2010, APS Council approved 5 new awards that will begin the nomination and selection process in 2011. These are: the Stanley Corrsin Award in fluid dynamics; the Landau-Spitzer Award in plasma physics, jointly administered with the European Physical Society; the Henry Primakoff Award for early-career achievement in particle physics; a dissertation award in theoretical particle physics to complement the Tanaka

Award in experimental particle physics; and an award administered by the Committee on Education to recognize excellence in undergraduate education.

The Society also elected 234 Fellows in the fall of 2010. Election to Fellowship represents recognition by one's professional peers, and is highly competitive because the number of Fellows is restricted to at most 0.5% of the Society membership in any given year. ■

# FINANCES | DECEMBER 31, 2010

**During the fiscal year 2010, our total assets increased from \$127.1M to \$135.4M, while our liabilities increased to \$34.6M from \$33.9M the previous year.**

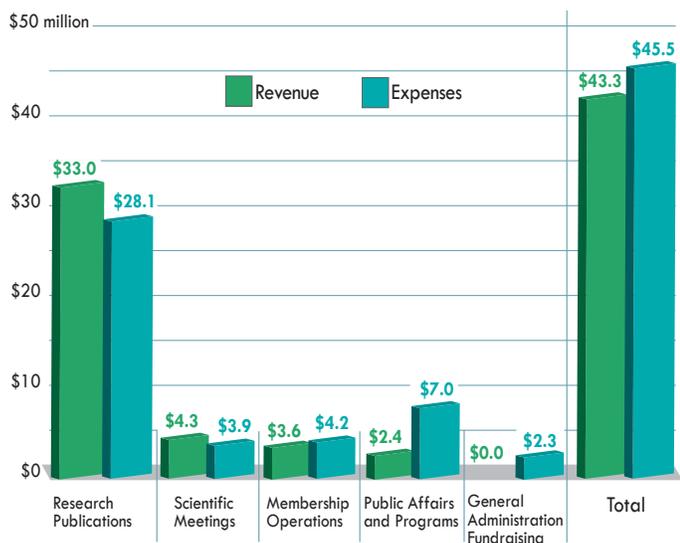
The tables and charts in this section summarize the financial operations of the Society as of December 31, 2010. The table headed Statement of Financial Position shows the final financial position of the Society for 2010 and 2009. The table headed Statement of Activities shows the financial activities of the various components of the Society for the 2010 and 2009 fiscal years. The distribution of operating revenues and expenses across the components of the Society is also displayed graphically in the accompanying figures.

Net assets at the end of fiscal year 2010 were \$100.7M, compared with \$93.1M at the end of 2009. These include \$11.2M in restricted net assets, which are funds for prizes and awards and for the programs of the current capital campaign. The restricted net assets decreased slightly from \$11.4M at the end of 2009, as funds collected in the capital campaign continued to be disbursed over time.

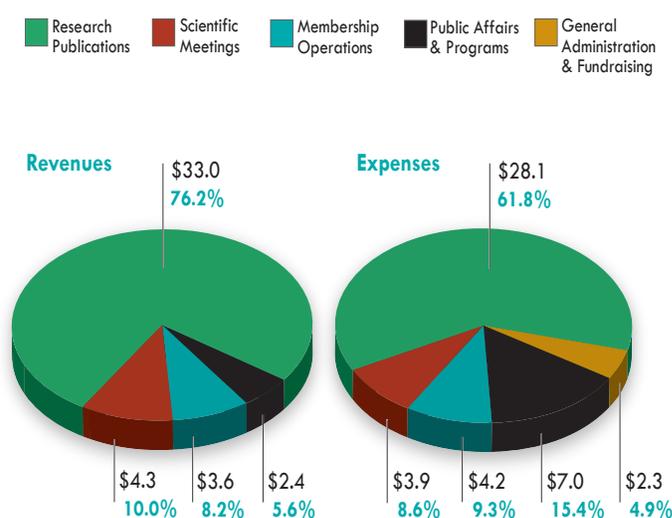
The unrestricted net assets include the Society's operating accounts (cash and cash equivalents), totaling \$15.4M at the end of 2010, and its investments in equities and fixed-income issues. During 2010 these investments increased in market value by approximately 11%, from \$96.1M on 12/31/2009 to \$107.0M on 12/31/2010, reflecting a continued recovery of the financial markets from the crisis in 2008.

Business Continuity Plans (BCPs) are in place for the College Park, Washington D.C., and Ridge offices. The BCPs provide action plans in the event of a disruption of normal operations by natural or manmade events. The BCPs include contact names, checklists of orderly procedures, and plans for off-site operations if necessary. The BCPs are updated annually and a report on their status is made to the audit committee. ■

## OPERATING REVENUE & EXPENSES (IN \$M)



## STATEMENT OF ACTIVITIES (IN \$M)



	2010	2009
<b>ASSETS</b>		
Cash and cash equivalents	\$ 15,425,705	\$ 18,474,822
Investments, at fair value	106,992,611	96,136,979
Accounts receivable:		
American Institute of Physics	3,988,089	4,679,888
Other, net of allowance for doubtful accounts of \$24,000 and \$87,000 in 2010 and 2009, respectively	678,768	1,184,388
Pledges receivable, net	196,866	359,581
Prepaid expenses and other assets	981,716	628,182
Equity interest in American Center for Physics	1,782,151	1,691,560
Land, building and equipment, net	4,845,561	3,456,143
Beneficial interest in perpetual trust	485,889	460,361
<b>Total assets</b>	<b>\$ 135,377,356</b>	<b>\$ 127,071,904</b>
<b>LIABILITIES AND NET ASSETS</b>		
<b>Liabilities:</b>		
Accounts payable	\$ 3,047,033	\$ 2,858,824
Deferred revenues:		
Publications	15,581,754	16,469,938
Membership dues	2,769,380	2,677,542
Other	89,755	308,391
Liability for post-retirement medical benefits	13,140,809	11,610,602
<b>Total liabilities</b>	<b>\$ 34,628,731</b>	<b>\$ 33,925,297</b>
Commitments and contingencies		
<b>Net assets:</b>		
Unrestricted	\$ 89,553,678	\$ 81,792,944
Temporarily restricted	9,018,821	9,209,778
Permanently restricted	2,176,126	2,143,885
Total net assets	100,748,625	93,146,607
<b>Total liabilities and net assets</b>	<b>\$ 135,377,356</b>	<b>\$ 127,071,904</b>

	2010	2009
<b>CHANGES IN UNRESTRICTED NET ASSETS</b>		
Revenues		
Research publications	\$ 32,995,144	\$ 32,374,467
Scientific meetings	4,329,109	4,548,060
Membership operations	3,553,441	3,353,002
Public affairs and programs	1,502,175	1,470,366
Net assets released from restrictions	904,448	732,108
	<u>43,284,317</u>	<u>42,478,003</u>
Expenses		
Program services		
Research publications	28,098,375	29,161,623
Scientific meetings	3,932,751	4,570,039
Membership operations	4,209,163	3,782,105
Public affairs and programs	6,081,402	4,790,796
Prizes and related costs	904,448	732,108
Total program services	<u>43,226,139</u>	<u>43,036,671</u>
Supporting services		
Fundraising	498,681	456,220
General and administrative	1,745,194	1,572,618
Total supporting services	<u>2,243,875</u>	<u>2,028,838</u>
Total expenses	<u>45,470,014</u>	<u>45,065,509</u>
Loss from operations	<u>(2,185,697)</u>	<u>(2,587,506)</u>
Non-operating activities		
Income from investments	1,614,069	1,586,850
Net unrealized gain (loss) on investments	9,669,418	17,322,114
Net realized loss on investments	(984,534)	(360,903)
Equity interest in American Center for Physics	90,591	283,338
Change in post-retirement medical benefits other than net periodic post-retirement medical benefit cost	(443,113)	118,407
	<u>9,946,431</u>	<u>18,949,806</u>
<b>Increase in unrestricted net assets</b>	<b><u>7,760,734</u></b>	<b><u>16,362,300</u></b>
<b>CHANGES IN TEMPORARILY RESTRICTED NET ASSETS</b>		
Contributions	135,901	139,763
Income from investments	577,590	638,037
Net assets released from restrictions	(904,448)	(732,108)
<b>Change in temporarily restricted net assets</b>	<b><u>(190,957)</u></b>	<b><u>45,692</u></b>
<b>CHANGES IN PERMANENTLY RESTRICTED NET ASSETS</b>		
Contributions	6,713	28,029
Gain (loss) on beneficial interest in perpetual trust	25,528	55,970
<b>Change in permanently restricted net assets</b>	<b><u>32,241</u></b>	<b><u>83,999</u></b>
<b>Change in net assets</b>	<b><u>\$ 7,602,018</u></b>	<b><u>\$ 16,491,991</u></b>

# 2010 CONTRIBUTIONS & GIFTS

**APS is grateful for contributions from corporations, government agencies, national and international labs, foundations and individuals that make possible the numerous activities and programs of the Society.**

In 2010, APS organized many educational and outreach programs associated with LaserFest, a year long celebration marking the 50th anniversary of the laser. The Development Office spearheaded a successful fund raising campaign to obtain sponsors and funders for those programs requiring external funding in order to be implemented.

Development provided fund raising support for a new campaign to endow the Bouchet award which lost its annual funding source. This campaign has raised close to \$70k thus far and continues in 2011 towards its \$140k goal. The *AIP Journal of Chemical Physics* signed on as the new sponsor for the Plyler Award. A campaign to fund a new dissertation award in theoretical particle physics was launched with the Division of Particle Physics, with a goal of \$75k. In addition, a campaign to seek support for the Davisson-Germer Award has been launched. Plans for the Society's next major campaign will be formulated to align with the goals resulting from an APS-wide strategic planning process now being undertaken. In the meantime, Development is focused on supporting Education & Diversity as it raises funds to launch the next phase of the Minority Bridge Program, a

major effort to increase the number of minority students receiving physics PhDs and to improve graduate education for all students.

Planned giving to the Society was promoted in 2010 through estate planning sessions at the annual meetings in DC and Portland. Additionally, the Development Office distributes planned giving brochures to members discussing the opportunity to include APS in their estate plans. Receptions to recognize our APS Fellows and share information about APS programs and initiatives were held in Stanford, Berkeley, Boston and Los Angeles in 2010. Annual giving as part of membership renewals and a year end mailing continues to provide key support to the Society's education and diversity, public affairs, and international programs, with public outreach being added as a new designation option for members making an annual gift.

APS is grateful to all donors at all levels. We are pleased to provide special recognition to those contributing \$100 or more in 2010 by listing their names in this annual report. We would also like to express our gratitude to the previously listed donors who have now fulfilled their pledges to the Society's 21st Century Campaign. ■

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