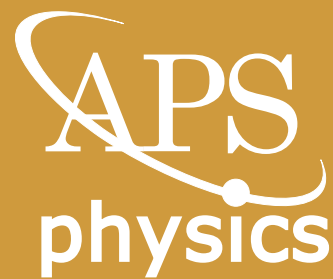


2005 Annual Report

American Physical Society



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¹Diffraction patterns of a GaN quantum dot particle—UCLA; Spring-8/Riken, Japan; Stanford Synchrotron Radiation Lab, SLAC & UC Davis, Phys. Rev. Lett. 95 085503 (2005)

²TESLA 9-cell 1.3 GHz SRF cavities from ACCEL Corp. in Germany for ILC. (Courtesy Fermilab Visual Media Service)

³G0 detector studying strange quarks in the proton—Jefferson Lab

⁴Sections of a resistive magnet (Florida-Bitter magnet) from NHMFL at Tallahassee

2005 was a very special year for the physics community and the American Physical Society. Declared the World Year of Physics by the United Nations, the year provided a unique opportunity for the international physics community to reach out to the general public while celebrating the centennial of Einstein's "miraculous year." The year started with an international Launching Conference in Paris, France that brought together more than 500 students from around the world to interact with leading physicists. I was very pleased to be part of this and see the students' enthusiasm for physics.

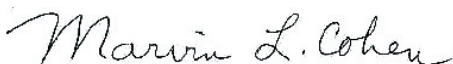
During the year APS organized and ran four major programs (see the section on World Year of Physics), including the popular PhysicsQuest, in which middle school students competed to find Einstein's hidden treasure. APS also coordinated more than 600 local events in the US. After attending international meetings in Bern, Switzerland, and Hangzhou, China, my World Year of Physics activities ended with the World Conference on Physics and Sustainable Development in Durban, South Africa. Many projects both within APS and internationally will continue into 2006 and beyond.

For APS, 2005 was a special year in other ways too. I am happy to report that APS is a growing organization, both in the size of its membership, which reached an all-time high of 45,519 by the end of the year, and in the range of its activities. One APS activity in particular, the March Meeting, has been expanding very rapidly in the last few years and had more than 6500 participants in 2005. APS research journals continued their long-term growth as well, with manuscript submissions increasing at a 6% rate in 2005.

Another area of increased activity in 2005 was the effort to communicate the importance of physics to Washington policy makers. In February, the Task Force on the Future of American Innovation, in which APS played a key role, released a report with quantitative benchmarks, which was circulated widely and made a deep impression on everyone who read it. This report, together with a National Academy Report, *Rising Above The Gathering Storm*, had a major effect by the end of the year, and the funding situation for physics looks much brighter for 2006 than it did in 2005. As part of an effort to better identify the "Physical" in APS with "Physics" for non-physicists, APS developed a new logo with "Physics" as its main element.

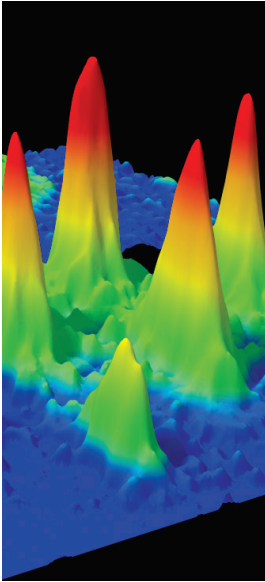
The major APS education program continues in its effort to address the significant shortage of physics and physical science K-12 teachers. This project, the Physics Teacher Education Coalition or PhysTEC, which is being carried out in partnership with our sister organizations AAPT and AIP, now has two thrusts; one to evaluate a model of aggressively increasing the number of highly qualified physics and physical science teachers through a comprehensive teacher preparation program, and another to build a growing national coalition of physics departments that are deeply committed to the education of future teachers and that will share best practices in this critical area.

Despite tight funding in 2005, the physics community continued to produce exciting results across the full range of physics. Examples included results from RHIC indicating that the early universe may have been composed of a liquid of strongly interacting quarks and gluons, strong evidence for superfluid behavior in solid helium and in an ultracold gas of fermion atoms, and a new record for high-speed switching using magnetic random access memory. The contributions of our community in both basic and applied physics are huge. APS will continue to encourage, enhance, and highlight these many contributions.



Marvin Cohen
APS 2005 President





Superradiant Rayleigh Scattering, Bose-Einstein condensate, Andre Schirotzek, Massachusetts Institute of Technology

Research Publications

Submissions to the *Physical Review* journals rose 5.7% in 2005; in fact, for the first time each month's submissions were above every previous month. The data also show a welcome damping of the peaks and plunges that have characterized submissions in previous years. Rising submissions have again been met with better tools, increased efficiency and remarkable productivity. Some attrition, coupled with retraining of remaining employees, has enabled the office to avoid layoffs and retain the corps of dedicated staff support people. In mid-November of 2005 the electronic editorial process and the queuing and tasking system, (known as Prism and Q-Track, respectively) finally permitted the abandonment of the old paper-folder-based system, a notable milestone that had been sought for a decade. Folder-free at last!

APS journals have been available online around the clock to subscribers worldwide for nearly ten years. Similarly, the new electronic editorial systems permit our editors to work from almost anywhere, be it a coffee shop in Athens, an internet equipped jetliner, or a Long Island kitchen during a snowstorm. Redundant power supplies, reliable vendors, off-site backups, and vigilance on the part of the Journal Information Systems Group all help to assure that readers and editors will be able to access the journal systems when and where they please. Business continuity is a constant concern, with new measures developed to address points of vulnerability as these are identified.

Several young physicists with international backgrounds joined the lively and collegial editorial group last year. Editors originating from Algeria, Bulgaria, China, Germany, Greece, India, Korea, the Netherlands, New Zealand, Sweden, Switzerland, the UK, and the US are now on staff. A new series of in-house colloquia began and included discussions with two Nobel Laureates: Wolfgang Ketterle and Philip Anderson. It was satisfying to note that work leading to the 2005 Nobel Prize for Roy Glauber, John Hall, and Theodor Hänsch had appeared in the *Physical Review*, as had been the case for many previous prizewinners.

Two venerable editors have retired and have left their journals in excellent positions and very good hands. George Bertsch of *Reviews*

of *Modern Physics* stepped down at the end of 2005 and was replaced by Achim Richter of the Technische Universität, Darmstadt. Bernd Crasemann of *Physical Review A* also retired and Gordon Drake of the University of Windsor succeeded him. Given the predominantly international nature of submissions and subscribers, having two new senior editors located outside of the US is most appropriate.

The Editor-in-Chief continued his engagement in the publishing community's discussion and definition of open access. There is growing understanding that open access is simply an alternative business model and not a moral imperative. Another open access journal was added to the *Physical Review Special Topics* series in 2005. This one, in the field of Physics Education Research, is edited by Robert Beichner of North Carolina State University and will be funded primarily by fees from authors or their institutions.

In spring of 2005 the APS Editor-in-Chief and Treasurer traveled to Japan and China to meet with subscription agents and publishing partners, and also to make presentations to authors and librarians at several institutions in the region. With 20% of submissions now coming from China and very large institutional subscribers located in Japan, the two officers were eager to have direct discussion with these valued colleagues.

The last ten years have seen a quiet revolution in the operation of the Editorial Office. The facility and its systems have been greatly modernized, the management structure has been realigned, the staff has been expanded and is much better supported, and the operation has a self-awareness that it lacked ten years ago. At the same time, efficiencies have been achieved and costs are lower and very well controlled.

Scientific Meetings

The annual March and April meetings in 2005 were again very successful. The March Meeting, held in Los Angeles, was the largest in its history. More than 6,600 people attended the program, with more than 6,300 abstracts presented in invited, contributed and poster sessions. The total number of attendees included 2,320 students and 1,280 international

attendees. The student attendance represents an increase of almost 20% compared to the 2004 March Meeting held in Montreal. More than 450 new members joined APS during the March Meeting registration process. Several special evening sessions were held: Paradigm Shifts: Breakthroughs and Advances that Shape our Field, and Einstein and Condensed Matter Physics were particularly well attended. Nobel Laureate Douglas Osheroff gave a public lecture entitled "The Nature of Discovery in Physics."

The 2005 April Meeting held in Tampa attracted more than 1,100 attendees. The Division of Particles and Fields held its divisional meeting in conjunction with the April Meeting. The program consisted of approximately 200 invited talks and 700 contributed talks. The three plenary sessions, added to the program several years ago, continue to be very well attended. A special evening symposium was held entitled "Neutrinos, Particles, and Underground Labs: Big Plans", and Lawrence Krauss delivered a public lecture on "Einstein's Biggest Blunder: A Cosmic Mystery Story."

Throughout 2005 there were many other 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), Division of Plasma Physics (DPP), and many meetings sponsored by the Topical Groups and Sections.

The 2005 meetings were supported by a new Meetings Abstract Submission system, designed with input from a multi-unit task force assembled in late 2004. The flexibility allowed by the new database-driven system facilitated adding several new features, including an improved personal scheduler for meeting attendees and numerous new statistical reports to assist in sorting and planning the meetings. The Invited Speakers Tracking System was also rewritten to improve efficiency and reduce errors.

Public Affairs

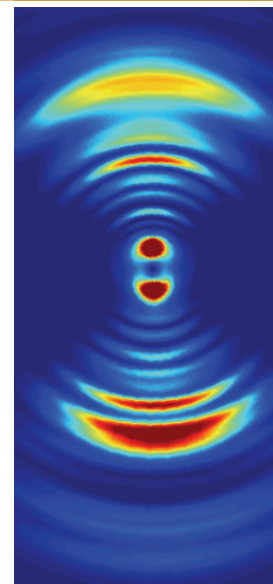
The calendar year 2005 opened with a series of disappointments for APS in Washington, but it closed with a series of extraordinary successes. From energy and weapons programs

to science research and education budgets, White House policies in January seemed destined to remain out of step with most APS positions and recommendations. The President's budget request for Fiscal Year 2006 recommended cutbacks in many research programs, reductions in support for science education, adoption of energy policies that focused on fossil fuels, and implementation of weapons policies that raised red flags for non-proliferation regimes.

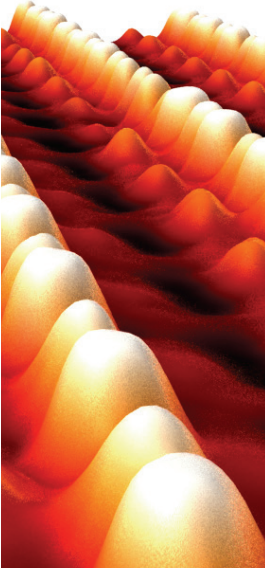
In February, the Task Force on the Future of American Innovation—which the APS had helped organize more than a year before with Intel, the National Association of Manufacturers, and ASTRA, among others—responded by releasing a report that benchmarked American R&D against global competitors. The report (see www.futureofinnovation.org) noted that America's primacy in high-tech innovation and trade was under growing challenge from abroad, especially from Asia, and, without changes in American policy, US economic leadership could easily vanish within a decade.

The Benchmarks Report gained great currency on Capitol Hill and ultimately led to congressional action by Representative Frank R. Wolf (Virginia), Chairman of the House Appropriations Subcommittee for Science, State, Justice, Commerce and Related Agencies, and Senators Lamar Alexander (Tennessee) and Jeff Bingaman (New Mexico), the Chair and Ranking Member of the Senate Energy and Natural Resources Committee. Wolf directed the Commerce Department to hold an Innovation Summit that would bring industrial leaders and Administration officials together for a one-day symposium aimed at developing new federal competitiveness policies. Alexander and Bingaman called on the National Academies to recommend policies to Congress that would address the global challenge.

In spite of all of the positive rhetoric from members of Congress in both parties, the fight for research funding in the FY 2006 budget was a steep uphill battle, given the budgetary constraints. Nonetheless, with extraordinary work by APS members, who sent more than 7,000 letters to Capitol Hill, 68 members of the Senate signed a letter urging the Energy and Water Appropriations Subcommittee to restore



Strong orientation effect in ionization of H_2 by short, intense, high-frequency light pulses. S. Selsto, M. Forre, J.P. Hansen and I.B. Madsen Courtesy of Phys. Rev. Lett. 95, 093002 (2005).



Scanning tunneling microscopy image of an array of self-organising Pt nanowires on a germanium surface. The Pt nanowires (yellow) have a cross-section of only one atom, are thousands of atoms long, kink free and virtually defect free. The spacing between the Pt nanowires is 1.6 nm. Dr. H.J.W. Zandvliet, MESA Research Institute for Nanotechnology, University of Twente. *Phys. Rev. Lett.* 95 116801 (2005)

funding to the Department of Energy's Office of Science. As the summer recess approached, both the House and Senate appeared committed to the DOE restorations, and the House was poised to add funding for the National Science Foundation. On August 29, Katrina made land-fall on the Louisiana coast, causing prior congressional budgetary commitments for DOE, NSF, and the National Institute for Standards and Technology to vanish overnight. The resulting FY 2006 appropriations bills were huge disappointments for science advocates.

However, on October 12, the National Academies committee, chaired by Norman Augustine, retired CEO of Lockheed-Martin, released its report, *Rising Above The Gathering Storm*, advocating increased funding for the physical science research and education. The Wolf Summit was held on December 6. In the intervening weeks, House Democrats released their Innovation Agenda and gave it top priority.

In mid-December, a series of high-level meetings, orchestrated in part by the Task Force, took place between White House officials, industrial leaders and several members of the Senate. By December 22, the Administration decided to make innovation and competitiveness a centerpiece of the President's domestic policy agenda. Research and education in the physical sciences would be incorporated into the State of the Union Address, and major increases for DOE, NSF, and NIST would be part of the President's budget request for FY 2007. At the same time, the Senate leadership also promised that innovation bills and funding for the physical sciences would be a top priority during 2006.

Science research and education budgets were not the only items on the APS advocacy agenda in 2005. In 2005, the Panel on Public Affairs (POPA) released a report on Nuclear Power and Proliferation Resistance that recommended strong federal emphasis on developing proliferation-resistant technologies to allow nuclear power to become a viable alternative energy source. The POPA report, which was featured in a Senate briefing and a House hearing, also noted that there was no need for the federal government to rush into an immediate decision on reprocessing spent reactor fuel until some of the technical proliferation resistance issues had been explored further. By year's end, the DOE had given assurances that the recom-

mendations in the POPA report would be incorporated into the Administration's plans for the Global Nuclear Energy Partnership (GNEP).

A POPA-inspired report dating to December 14, 2000, which called for the creation of a new Under Secretary to manage DOE civilian research, also yielded fruit in 2005, when the President signed into law energy legislation establishing the position of Under Secretary of Energy for Science. Raymond Orbach, the Director of DOE's Office of Science, was nominated for that position.

APS Public Affairs activities also involved partnering with other scientific societies, including the National Academy of Sciences, to address the issue of Intelligent Design. By year's end, the coalition of 13 societies had raised more than \$100 thousand dollars for engaging a polling firm to assess public attitudes and provide scientists with advice on how to communicate their view on the subject effectively.

World Year of Physics

The World Year of Physics 2005 was an international celebration of Albert Einstein's "miracle year" of 1905, in which he put forward the theory of special relativity, the idea of light quanta, and a quantitative explanation of Brownian motion. APS spearheaded the WYP activities in the United States, in conjunction with the American Association of Physics Teachers and the American Institute of Physics. One of the main goals was to stimulate WYP events locally throughout the country. More than 600 such events were submitted to our Online Event Finder (www.physics2005.org).

In addition, working with funding from NSF, DOE and NIST, APS organized four core projects of its own:

PhysicsQuest, a learning adventure for middle school (grades 6-9): This program was so popular with teachers and students that we were able to run it twice in 2005. Approximately 10,000 middle school classrooms participated in this activity, in which students solved four physics experiments to find the location of a fictitious treasure hidden by Albert Einstein. The treasure was located on the grounds of the Institute for Advanced Study in Princeton, New Jersey. In aggregate, 58% of the classes that

submitted results solved the mystery, and the winners of the competition were chosen randomly from the correct answers.

Eratosthenes experiment, an activity for high school students (grades 9-12): More than 700 classes throughout North America (including Canada and Mexico) participated in re-creating Eratosthenes's experiment to measure the circumference of the Earth. Classes at approximately the same longitude but very different latitudes were paired up, and each pair measured the angle of the sun (by comparing the length of a meter stick to the length of its shadow) at local noon on the same day. Knowing the separation between the schools, these data could then be used to calculate the Earth's circumference. The combined answers from those that were submitted reflected only a 3% difference from the accepted value.

Einstein@Home, a distributed computing project for the public: Einstein@Home uses idle computer time to search for gravitational waves from asymmetrical spinning neutron stars, using data from the LIGO and GEO detectors. In 2005, approximately 160,000 users, representing 162 different countries, signed up to participate in Einstein@Home. This project will continue analyzing data into 2006 and beyond.

Physics on the Road, a physics demonstration program for schoolchildren of all ages and the public: Grants of \$10,000 were awarded to 20 colleges and universities, from among 39 applicants. The physics on the road teams used the funds to purchase new equipment, and for student presenters to travel to and from shows. In some cases, the funds were even used to secure new vehicles for the program. Together, these teams have performed physics demonstrations for thousands of people at schools, shopping malls and other venues.

Throughout the World Year, the APS collaborated with a number of local and national organizations, including NASA, the National Academy of Sciences, and the PBS science show NOVA. In addition, in the fall of 2004, APS participated in the Discovery Channel's "Young Scientist Challenge", whose main theme was physics in honor of the upcoming WYP.

The World Year of Physics also provided numerous opportunities for APS President Marvin

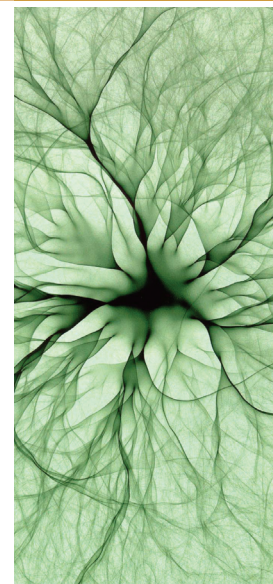
Cohen to be a US ambassador for physics. He represented the APS at the international WYP kickoff conference in Paris in January, he co-hosted the APS/AAAS gala in Washington in February, he chaired a panel discussion at the National Academies on NOVA's show about $E=mc^2$, and he led APS's participation in the World Conference on Physics and Sustainable Development in Durban, South Africa in October.

Finally, the WYP saw the inauguration of the APS historic sites initiative, in which a distinguished committee selected the first round of important US historic physics sites. In 2005 plaques were presented to honor Franklin in Philadelphia, Michelson and Morley in Cleveland, and Compton in St. Louis. Plaques to honor Gibbs in New Haven and Rowland in Baltimore will be presented in 2006, and the committee will announce its second round of choices in 2006 as well.

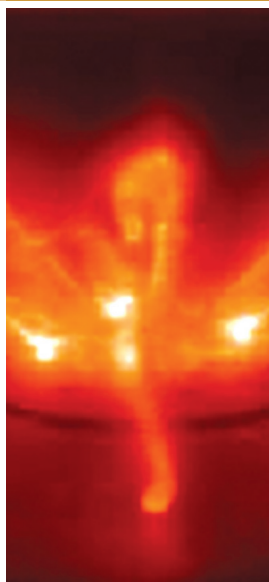
International Programs

As part of the celebration of the World Year of Physics, the World Conference on Physics and Sustainable Development (WCPSD) was held in Durban, South Africa, from October 31 to November 2, 2005. The WCPSD served as the first global forum to focus the physics community toward sustainable development goals and new mechanisms of cooperation toward their achievement. Four themes were chosen for the conference: Physics and Economic Development, Physics and Health, Energy and the Environment, and Physics Education. Over 300 participants from nearly 90 developed and developing nations joined together to formulate action-oriented plans for each thematic area.

APS played a leadership role in organizing the WCPSD, helping to raise over \$500,000 from more than 25 organizations. In large part, these funds were used to award travel grants to physicists from developing countries and Eastern Europe. The WCPSD, cosponsored by UNESCO, the Abdus Salam International Center for Theoretical Physics (ICTP), the International Union of Pure and Applied Physics (IUPAP), and the South African Institute of Physics (SAIP), brought together over 300 senior physicists from the developed and developing world.



Theoretical flow of electrons in a two-dimensional electron gas away from an electron source at the center. The same scattering that produces diffusion creates static branches of electron flow. Eric Heller, Harvard University.



"Spider" pattern of plasma emerging from nozzles, Dr. S. You, California Institute of Technology. Phys. Rev. Lett. 95, 045002 (2005)

Another APS-sponsored event underscored the importance of international collaboration to graduate students. Leaders of the APS Forum on Graduate Student Affairs planned and hosted the Canadian-American-Mexican Graduate Student Conference (CAM2005) in August 2005, in San Diego, CA. Jointly sponsored by the American Physical Society, Canadian Association of Physicists, and Sociedad Mexicana de Física, CAM2005 gave physics graduate students from across North America: 1) an opportunity to attend a unique conference planned by and for them; 2) exposure to recent findings in the various subfields of physics; 3) a forum to address concerns particular to physicists in the early stages of their careers; and 4) an appreciation of the different experiences of physics students from North American countries. (see <http://cam2005.ps.uci.edu/>)

This past year brought improvements in visa policy, with streamlined procedures that reduced wait times for most scientists' visas from several months to approximately two weeks. In addition, US government policy changes allowed for multiple entry visas for Chinese students and scholars, as well as extended durations of the mantis security clearances. Despite these gains, the Society joined a group of 40 leading academic, science and engineering associations in signing a jointly developed report that underscored to the US government that "more work remains!" While noting progress during the past year, the group made six additional recommendations for new improvements that emphasized the urgent need to dispel the "misperception that our country does not welcome these international visitors."

The APS, through its Forum on International Physics and Committee on International Scientific Affairs, established a new Travel Grant Award Program in 2005 to help fund collaborations between US and developing country scientists. The Travel Grant Program awards up to \$2000 toward travel expenses to support international collaboration with developing country physicists. Eight grants have already been awarded.

In 2005, APS made arrangements for its online research journals to be freely available to most institutions in sub-Saharan Africa. Beginning in 2006, not-for-profit institutions located in eligible countries can register to gain online access to APS journals.

After the devastating tsunami in Southeast Asia in December 2004, the APS sought ways to assist colleagues in that region. The Society obtained donations from APS members to provide financial support that enabled science students in southern Sri Lanka to continue their studies.

Education and Outreach

In 2005, efforts to improve the number and quality of physics and physical science K-12 teachers continued to be APS's most important educational effort. The project, called the Physics Teacher Education Coalition (PhysTEC) and carried out with the collaboration of the American Association of Physics Teachers (AAPT) and the American Institute of Physics (AIP), was in its fourth year of a major grant from NSF. (see www.phystec.org) In 2005, five university physics departments, with continuing funding under PhysTEC, tripled their production of high school physics teachers from an average of 1.1 to 3.3 per year. This increase, if spread nationwide, can help answer the dramatic shortage of qualified high school physics teachers—a shortage that can have a profound impact on the discipline.

In order to give physics teacher education national visibility and a broad impetus, PhysTEC has a second objective. This is to bring together a broad coalition of universities to advocate for better teacher education and share best practices. (see www.ptec.org) The coalition grew to 26 member institutions in 2005 and held its first national conference on teacher education in March 2005 at Ball State University. The conference brought together national leaders in physics teacher education, and featured workshops that exposed attendees to critical issues and provided direct experience with innovative ideas that have been shown to improve teacher education.

In collaboration with AAPT and the American Astronomical Society (AAS), APS co-sponsored the 10th annual New Faculty Workshop in November 2005 at the American Center for Physics in College Park, MD. This workshop, funded by the NSF, continues to reach out to a large fraction (about one third!) of all new physics and astronomy faculty across the country.

The workshop features nationally recognized leaders in physics and astronomy education research, presents practical examples of how to implement research-tested pedagogical techniques, and offers help with skills such as time management and actively engaging students in large lecture settings.

In 2005, the APS continues its efforts to collect and disseminate web-based educational materials through a joint AAPT/AAS/AIP/APS NSF-funded digital library project. (see www.compadre.org). APS now directly manages the goals and content of two web "portals" on informal science and teacher education, and co-sponsors two others including a portal on physics education research.

In 2005, APS organized two Teachers' Days, annual events at the APS March and April Meetings, which involve local high school physics teachers in a day of research talks, hands-on workshops, and networking. Teachers' Day at the 2005 March Meeting in Los Angeles featured a wider array of workshops than ever before and was attended by 76 teachers. Teachers' Day at the 2005 April meeting in Tampa hosted 44 teachers.

In 2005, the Task Force on Graduate Education in Physics, a joint AAPT/APS effort, completed and published its recommendations and findings (www.aapt.org/Resources/GradEdReport.cfm). The main thrust of this effort was a survey, done with the assistance of the AIP, which characterized programs, curricula and requirements. The task force found a significant similarity in programs throughout the country, and made a number of recommendations concerning the education of physics graduate students including ethics education, monitoring of progress to degree, and communication skills of graduate students.

In 2005, APS conducted the first of its NSF-funded professional skills development workshops for a total of 60 tenured women physicists at the March and April meetings. These workshops emphasized communication and negotiation skills. The Committee on the Status of Women in Physics (CSWP) offered university physics departments the opportunity to post information about what they offer for women graduate students on the APS website. The site now hosts more than 100 responses from physics departments. (see <http://cswp.catlla.com/results.php>)

In 2005, APS awarded the first M. Hildred Blewett Scholarship for Women in Physics to Rebecca Forrest of the University of Houston. The scholarship is designated for women who, for family or other reasons, have had to give up doing research for a time, but would now like to resume their careers.

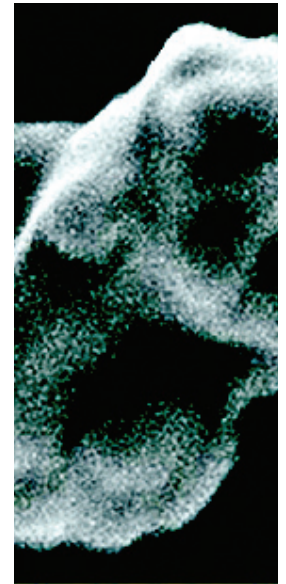
This past year, APS awarded scholarships to 27 students as part of its annual APS Scholarship Program for Minority Undergraduate Physics Majors. They were selected by the APS Committee on Minorities from a large number of excellent applicants. Knowing that mentoring is critical to the success of all students, and often more so to under-represented groups, in 2005 the Committee on Minorities dedicated itself to providing solid mentoring for the APS minority scholars. The committee structured the communications between the students and their physics department chairs, and members of the Committee made contact with all of the students. Additionally, each student was assigned a mentor at his or her institution with the assistance of the department chair.

The APS online Career Center (careers.aps.org) continued to grow in registration by both job seekers and employers. In 2005, the career center saw a 27% increase (over 1000 total) in jobseekers registered through the APS website. Employer registration also increased by 27% to 144. The total number of jobs in the database from all portals in 2005 was 2897, making this one of the best places for physicists positions and seek employment.

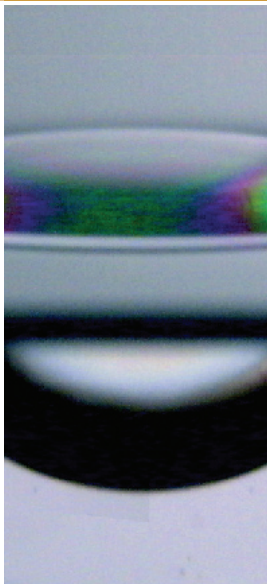
Membership

APS membership showed remarkable growth in 2005. The official APS member count increased more than 2,000 members from the previous year, reaching an all-time high of 45,519. The growth in membership was spread over almost all fields of physics, but the very successful annual meeting run by the Division of Fluid Dynamics caused a particularly large increase in this area. Much of the growth was also in the student member category; APS now has over 10,000 active student members.

In 2005, APS was able to offer a new member benefit, a sizable discount on science and technology books published by Elsevier. The program will be reviewed in 2006 to see if ad-



Diffraction patterns of a GaN quantum dot particle - UCLA; Spring-8/Riken, Japan; Stanford Synchrotron Radiation Lab, SLAC & UC Davis, Phys. Rev. Lett. 95, 085503 (2005)



Floating drop, plus interference fringes of the air film as observed when the drop is lit from the top. E. Fort, ESPCI, France, Phys. Rev. Lett. 94, 177801 (2005)

ditional publishers should be contacted about expanding the benefit.

The creation of an additional search capability for the online member directory was added in the summer of 2005. This allows search by a member's place of work (affiliation), something that many members had requested.

In 2005 APS carried out an extensive survey of all of its student members. Results will be compiled and their implications will be discussed by the Committee on Membership.

Public Information

The popularity of the APS website for the public, PhysicsCentral (see www.physicscentral.com) continued to grow in 2005, with millions of hits logged each month. PhysicsCentral is used as a resource in classrooms all over the world. The site remains the top result in a Google search on the term "physics". Throughout 2005, the PhysicsCentral homepage displayed a large banner announcing the World Year of Physics to all of its users and directing them to WYP2005 information.

To increase coverage of physics in the popular media, and to help science journalists keep informed of the latest physics news, the APS fields inquiries from members of the media, assists APS members interacting with media, and produces and distributes press releases relating to important physics news and policies. Items identified in 2005 Tip Sheets, which APS distributes to the press to point out items of broad interest in APS journals, were regularly covered in the *New York Times*, *Washington Post*, *Wall Street Journal*, *USA Today* and Associated Press as well as on radio. *Science News* magazine identified a paper about time travel, which had appeared in *Physical Review Letters* and was promoted to the magazine's editorial staff through APS Tip Sheets, as one of the top ten most interesting science stories of the year. As in previous years, a significant fraction of physics research coverage in 2005 (5-10%) was directly attributable to the coordinated activities of APS Media Relations, APS's *Physical Review Focus*, and AIP Media and Government Relations.

Prizes and Awards

Every year APS bestows many prizes and awards, primarily for research accomplishments in physics, but also for various forms of public service. In 2005, 21 individuals received prizes and awards at the APS March Meeting in Los Angeles; 13 were presented at the April Meeting in Tampa; and an additional 10 at meetings of individual divisions and topical groups. Of this total, five were special awards given for the best graduate student dissertations in specific fields.

Efforts to raise funds for the new Award for Excellence in Physics Education were very successful. At the end of 2005, \$83,000 had been raised towards the \$100,000 target goal, and the full goal was reached shortly thereafter. This award will recognize a group of individuals who have exhibited a sustained commitment to excellence in physics education. In addition, a new award to recognize outstanding leadership and achievements of scientists in upholding human rights, the Andrei Sakharov Award, became fully funded and will be awarded for the first time in 2006.

Finances

The accompanying two tables and charts summarize the financial operations of the Society as of December 31, 2005. The financial position of the Society on December 31 is summarized for 2004 and 2005 in the Statement Of Financial Position. The financial activities of the various components of the Society are summarized in the Statement Of Activities. The 2005 numbers cover the 12 months from January 1, 2005 to December 31, 2005.

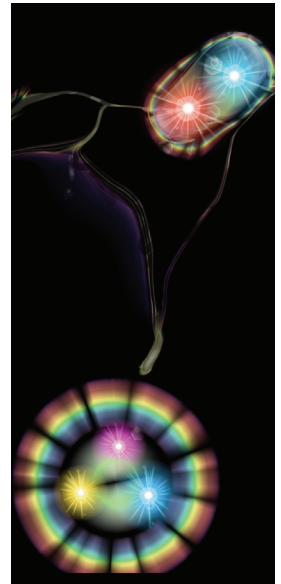
A different presentation of the financial activities of the Society is through the accompanying bar chart covering the FY05 Operating Revenues And Expenses and a pie chart of the FY05 Statement Of Activities showing the distribution of revenue and expenses between different Society activities.

At the end of the fiscal year 2005, the total assets of the American Physical Society were \$111.7M, up from \$106.5M a year before. The Society's liabilities were \$30.2M, down from

\$31.9M the previous year. Net assets at the end of fiscal year 2005 were \$81.4M compared with \$74.6M at the end of 2004. Net assets include \$9.4M in restricted net assets and \$72.1M in unrestricted net assets. The restricted net assets are monies intended for prizes and awards and for the programs of the current capital campaign. The unrestricted net assets are the Society's reserves, which may be used for any of the operations of the Society. The Society's reserves are primarily invested in equities and fixed income issues to provide income to the Society. During 2005 these investments had a net income of \$4.8M. The budget of the Society is constructed to allow, on average over time, a portion of the

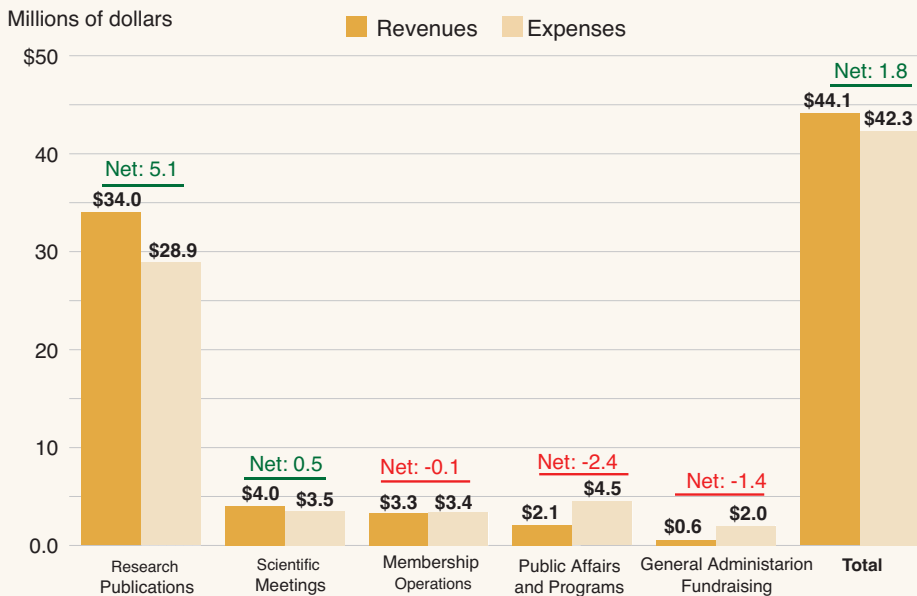
income from investments to augment contributions from members in support of the Society's programs, while the remaining portion of this income is reinvested to allow reserves to grow with inflation.

A Business Continuity Plan (BCP) is in place for both the College Park/Washington office and the Ridge office. The purpose of the BCP is to provide an action plan in the event of a disruption of normal operations because of natural or manmade events. The BCP includes contact names, checklists of orderly procedures and plans for off-site operations if necessary. The BCP is updated annually and a report on its status is made to the audit committee.

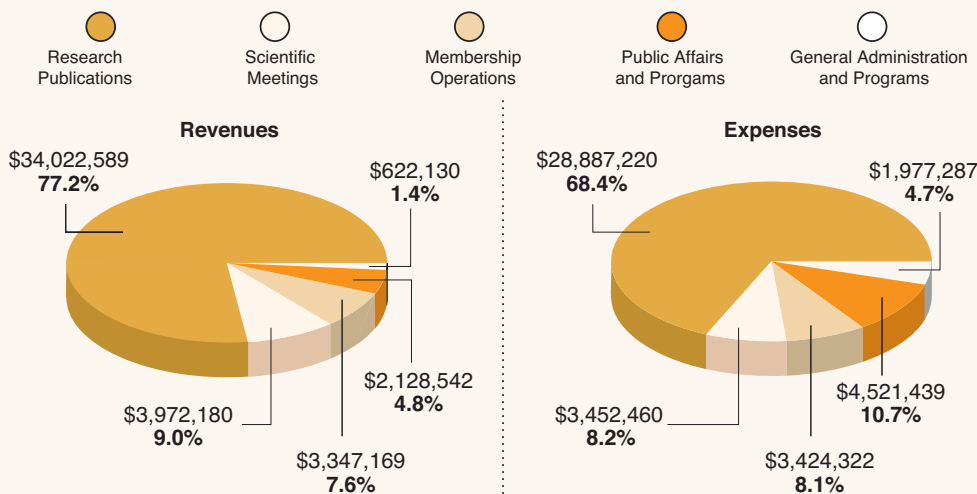


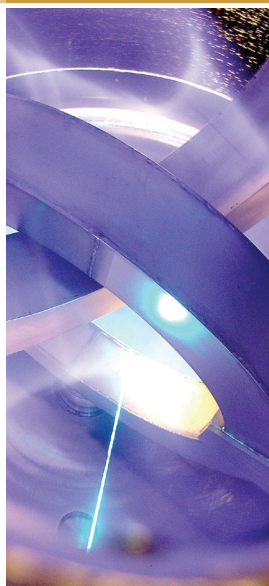
A collision has spawned a meson from the effect of a fast electron approaching a proton and neutron, each containing three quarks. Jefferson Lab.

APS operating revenue and expenses (Fiscal year 2005)



APS statement of activities (Fiscal year 2005)





Wispy nitrogen plasma illustrates the twisted toroidal shape of magnetic fields surrounding coils in a plasma chamber—T. Pederson, Columbia University

Statement of Financial Position

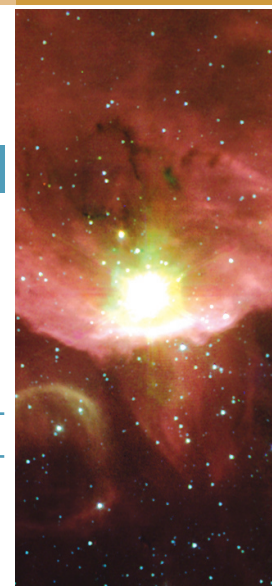
As of December 31, 2004 and 2005

Assets	2005	2004
Cash and cash equivalents	\$ 15,264,547	15,220,741
Investments, at fair value	82,198,855	77,476,419
<i>Accounts receivable:</i>		
American Institute of Physics	6,715,387	5,700,479
Other, net of allowance for doubtful accounts of \$310,000 and \$151,000	986,021	662,102
Bequest receivable	983,336	1,406,889
Pledges receivable, net	430,769	748,758
Prepaid expenses and other assets	518,159	406,459
Land, building and equipment, net	4,144,619	4,407,489
Beneficial interest in perpetual trust	433,080	428,649
Total assets	\$111,674,773	106,457,985
Liabilities and Net Assets		
<i>Liabilities:</i>		
Accounts payable	\$ 1,943,906	1,889,700
Deferred revenues:		
Publications	17,393,576	20,142,290
Membership dues	2,447,175	2,393,388
Other	131,978	186,560
Liability for post-retirement medical benefits	8,331,263	7,250,581
Total liabilities	30,247,898	31,862,519
<i>Net Assets:</i>		
Unrestricted	72,050,165	65,420,730
Temporarily restricted	7,330,553	7,264,574
Permanently restricted	2,046,156	1,910,162
Total net assets	81,426,874	74,595,466
Total liabilities and net assets	\$111,674,772	106,457,985

Statement of Activities

For the Fiscal Year Ended December 31, 2005 and 2004

Changes in Unrestricted Net Assets:	2005	2004
Revenues:		
Research publications	34,022,589	34,314,725
Scientific meetings	3,972,180	3,284,793
Membership operations	3,347,169	3,141,064
Public affairs and programs	2,128,542	1,378,802
Net assets released from restrictions	622,130	451,128
	44,092,610	42,570,512
Expenses:		
Research publications	28,887,220	29,506,624
Scientific meetings	3,452,460	3,344,560
Membership operations	3,424,322	3,447,376
Public affairs and programs	4,521,439	3,615,304
Fundraising	373,701	360,700
General and administrative	981,456	888,891
Prizes and related costs	622,130	451,128
	42,262,728	41,614,583
Income from Operations	1,829,882	955,929
Non-operating activities:		
Income from investments	2,746,920	2,083,152
Net unrealized and realized gains on long-term investments	2,052,633	4,807,473
	4,799,553	6,890,625
	6,629,435	7,846,554
Changes in Temporarily Restricted Net Assets:		
Contributions	196,451	511,448
Income from investments	491,658	441,552
Net assets released from restrictions	(622,130)	(451,128)
	65,979	501,872
Increase in temporarily restricted net assets	65,979	501,872
Changes in Permanently Restricted Net Assets:		
Contributions	135,994	1,434,150
	135,994	1,434,150
Increase in permanently restricted net assets	135,994	1,434,150
Increase in net assets	6,831,408	9,782,576
Net assets at beginning of year	74,595,466	64,812,890
Net assets at end of year	81,426,874	74,595,466



Infrared image of new-born stars in a dust cloud, NASA/JPL-Caltech/G. Mel-nich, Harvard-Smithsonian Center for Astrophysics

2005 Contributions and Gifts To APS

APS is fortunate to benefit from contributions from corporations, governmental agencies, national laboratories, foundations, and individuals. These gifts provide vital support to our many education, international, and public affairs programs. They also fund new and existing prizes and awards of the Society. During 2005, APS members gave an impressive \$300,000 in annual gifts in conjunction with their membership renewal or at year-end.

Funds raised thus far in the 21st Century Campaign are being used to provide substantial support for key APS science education programs with fund raising continuing to seek additional support for these initiatives. Our prizes and awards benefited from fund raising led by hard-working unit volunteers and the generous gifts of donors. Most noteworthy in 2005 was the completion of the fund raising campaign for the new Andrei Sakharov Prize as well as intensive fund raising activity for the new Excellence in Education Award. These prizes will be awarded for the first time in 2006 and 2007 respectively. The Development office also raised substantial funds in support of the 2005 World Year of Physics gala and its education and outreach activities. In addition, we are grateful for public sector grants that allow us to conduct signature programs such as the Physics Teacher Education Coalition (PhysTEC) which is improving the education of future physics and physical science teachers. In the area of planned giving, the first recipient of the M. Hildred Blewett Scholarship for Women in Physics was chosen. This endowed scholarship program was established through a most generous bequest from M. Hildred Blewett. APS encourages and recognizes bequests in support of its programs through its recently established Bequest Society.

We are pleased to provide special recognition to major donors to the Society during 2005 by including their names in this Annual Report and on the APS Fund Raising Website. We would also like to extend our thanks to past contributors to other major APS initiatives.

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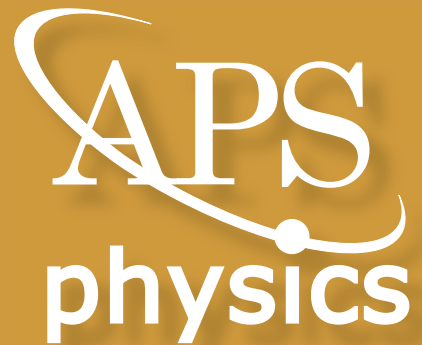
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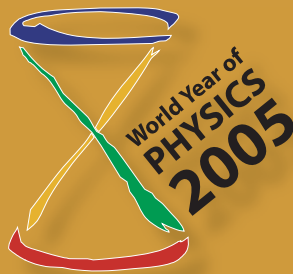
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The logo for the World Year of Physics 2005.

This logo was displayed on posters, on websites, various publications and even on the side of a building in Washington, DC.

"Since its introduction by the EPS, the World Year of Physics 2005 logo has been subject to divergent views regarding its interpretation. To physicists it signifies a light cone, while to the general public, most of whom have never heard of a light cone, it most frequently is seen as an hourglass, symbolizing Einstein's profound insight into the relativity of time. The colors are probably merely decorative, but it has been suggested that, in the light cone interpretation, the future is blue because we are rushing toward it and hence it is blue-shifted, whereas we are moving away from the red-shifted past. No one has yet provided a convincing theory of the green and yellow colors of the diagonal members." (APS News, October 2003)