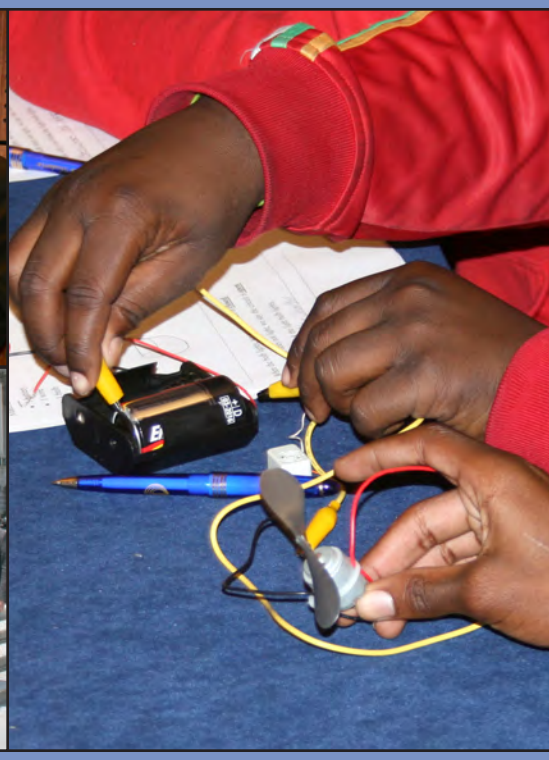
AAPT American Association of Physics Teachers



2011
annual report

2011
in Summary

President – David Sokoloff

In this 2011 Annual Report of AAPT, you will find many indications that AAPT is alive and well, and continues to effectively serve its nearly 9000 members in their careers as physics educators. You will find that our national meetings in Jacksonville and Omaha were of high quality and well attended. You will find that our peer-reviewed publications, *American Journal of Physics*, *The Physics Teacher*, and *Physical Review Special Topics - Physics Education Research* (co-sponsored by AAPT) continue to provide the wealth of information on physics education and physics education research that our members need, and continue to serve as effective outlets for their scholarly work. Likewise, our electronic media and information systems, like the eNNOUNCER and ComPADRE are healthy and invaluable to our members. You will also find that we have successfully maneuvered our finances through a challenging period, that our budget is in balance, and that we have put in place measures and a fundraising effort that should keep us in good shape for the foreseeable future. Finally, you will find that as measured by the wealth of volunteers who are enthusiastically involved on the Board, on committees, as section representatives, and in the many other roles that support AAPT, the organization remains healthy indeed!

Of course, there are challenges, and our members can help with these. Our membership has been dropping over a number of years. Have you encouraged a physics educator to join AAPT—their professional organization—recently? We continue to be a "broad tent" that welcomes physics educators at all levels. This can be both a blessing and a curse. It makes for a membership with a refreshingly wide diversity, but it also makes it a challenge to keep everyone satisfied. This is not a new challenge for AAPT, as we try to provide valuable programs and resources for all of our members.

A second, related challenge is defining the relationship between the members of national AAPT and those of its more than 50 sections. We are all physics educators, and we all have generally the same goals. But national AAPT and the sections do not always necessarily support each other's work in the most effective ways. I am hopeful that AAPT's Committee on Governance Structure (COGS) will work with the sections during this next year to better define this relationship in order to improve the work of both the national association and the sections.

As I review my year as President, I want to express my appreciation to the Board, Executive Officer, Associate Executive Officer, Senior Management Team and Staff of AAPT for their hard work and creativity in attacking the issues that have challenged us in 2011. I am pleased that the following initiatives that I consider to be important to our association have occurred during my Presidency—with the assistance of the people I have just mentioned:

(1) Successful implementation of online fall and spring Board meetings, accomplishing substantial budget savings.

(2) Establishing mechanisms to enable the Board to use its time at national meetings more efficiently, also bringing about substantial budget savings.

(3) Putting in place mechanisms to make the budgeting process for AAPT more transparent and understandable.

(4) Beginning the development and implementation of an expanded fundraising component for AAPT, advised by a Fundraising Advisory Subcommittee of the Board.

(5) Establishing better budgetary checks and balances within the AAPT office, to help have a better handle on the association's finances.

I believe that these initiatives have made AAPT's finances considerably more solid, have helped to assure that the association will weather the continuing financial crisis in the U.S., and have allowed us to once again focus our attention on the quality and effectiveness of the association's programs.

I extend my best wishes to Jill Marshall as 2012 AAPT President, I look forward to working with her on the Board, and I look forward to new adventures in my role as Past President.

Best Regards,

David R Sokoloff

Executive Officer – Beth Cunningham

I am delighted that my service as the Executive Office of AAPT started January 1, 2011. I want to thank Warren Hein for his many years of service to AAPT first as the Associate Executive Officer from February 1997 through August 2007 and, most recently, as the Executive Officer from September 2008 through December 2010. He provided strong leadership especially the last few years during which AAPT faced budget challenges. I especially appreciate Warren's patience as I learned the inner workings of the Executive Office during his last few months and my first few months at AAPT. I also thank the AAPT Executive Board, the entire membership, and the AAPT Executive Office staff for assisting me in making a very easy transition to AAPT. You make this position genuinely enjoyable! Every day I experience the difference that AAPT makes to a range of individuals, from high school students who participate in one of AAPT's contests deepening their knowledge of physics to the veteran member who gives back to the physics education community by sharing their knowledge with other members at our workshops and national conferences.

AAPT experienced a number of transitions in 2011. Robert Hilborn joined AAPT as the Associate Executive Officer in September. Bob served as AAPT president in 1996-97. He has been the project director of several major programs at AAPT, including the National Task Force on Undergraduate Physics which produced the Strategic Programs for Innovations in Undergraduate Physics report and the Workshops for New Physics and Astronomy Faculty which have assisted new faculty at research and four-year colleges in understanding how to become more effective educators. Bob will continue to provide leadership to these programs as well as assist the Executive Office in its work supporting AAPT's other programs. In addition, Jan Tobochnik who served as the editor of the American Journal of Physics for over ten years went back into a full-time faculty position at Kalamazoo College. Under Jan's direction, AJP entered the digital age with electronic manuscript processing and continued the strong intellectual content. He is replaced by David Jackson who is on the faculty in the Physics Department at Dickinson College. David has extensive experience as a reviewer, guest editor, and author for AJP. The Associate Editor position transitioned from Harvey Gould (Clark University) to Daniel V. Schroeder (Weber State University). Daniel has served in the past as the Book Editor and on the Editorial Board of AJP. Finally, Pearl Watson joined AAPT as the Meetings Logistic and Registration Coordinator. Many of our meeting participants have already interacted with Pearl as she assisted them with registration. I am looking forward to working with Bob, David, Daniel, and Pearl for many years to come.

This year was remarkable in many ways, not the least of which was the number of ways AAPT contributed to the advancement and improvement of physics education. Below is a summary of the some of the exciting contributions made by AAPT.

National Research Council's K-12 Science Framework and Achieve's Next Generation Science Standards

A select group of K-12 science education experts and AAPT members completed an evaluation of the NRC's K-12 Science Framework document that was released in July 2011. A report from this group provided feedback to both NRC and Achieve, the organization developing the Next Generation Science Standards.

The development of the Next Generation Science Standards (NGSS) is a two-step process. The first step was completed in July 2011 with the release of the

Framework. The second step is the development of science standards based on the Framework. Currently, twenty-six states have partnered with Achieve to develop the NGSS (see http://www.nextgenscience.org/six-more-states-join-effort-write-nextgeneration-science-standards for a listing of the lead states). The twenty-six state partners will guide the standards writing process, gather and deliver feedback from state level committees and come together to address common issues and challenges in implementing the new standards. AAPT will continue to be pro-active in providing feedback on the NGSS as drafts are released.

Fundraising

AAPT depends heavily on the donations of its members to a number of designated funds that support various AAPT programs such as the AAPT awards, the New Teacher Fund, the Student Fund, and to support activities such as the International Physics Olympiad. Major donations were received to fund the Excellence in Pre-College Physics Teaching, renamed the Paul W. Zitzewitz Award for

Excellence in Pre-college Physics Teaching Award, and the Award for Excellence in Undergraduate Teaching, renamed the David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching. The family of Clifford Swartz, a past editor of The Physics Teacher and long-time member, gave a significant gift in support of the journal and the Yamani Fund was established to award two-year AAPT memberships to early career teachers particularly in developing nations. The fund was endowed by several colleagues and mentees of Dr. Hashim A. Yamani, a prominent and well-respected physics educator, researcher, and public servant in Saudi Arabia and long time AAPT member. In addition, the American Institute of Physics continues to assist AAPT by contacting AIP Member Societies regarding contributions for the Team. For the past few years, AIP and its Member Societies have contributed $40,000 each year in support of the Team. Finally, AAPT received many generous contributions that helped fund the general operations without which many of our programs would not have happened.

Professional Development Opportunities

AAPT offers a number of programs and opportunities in which physics educators (anyone who teaches physics K-20) learn about strategies and techniques to engage their students. AAPT's Physics Teaching Resource Agents program continues to provide professional development for in-service teachers of physics and physical science. National Science Foundation funding ended in May of 2010 and activities sponsored by AAPT/PTRA rely on a special fund that is included in AAPT's Short Term Reserve. This fund provided support to train PTRA workshop leaders at the Summer Institute held prior to the Summer Meeting in Omaha. In addition to PTRA, a special "High School Teachers Day" was held at the Winter Meeting in Jacksonville and the Summer Meeting in Omaha. This day, facilitated by AAPT member Daniel Crowe, provided the opportunity for high school physics teachers to network, attend sessions, and learn more about AAPT. The Workshop for New Physics and Astronomy Faculty, in collaboration with APS and AAS, continues to provide support to new faculty at research universities and four-year colleges reaching to approximately half of the new faculty each year. Finally, the National Science Foundation is providing support for an eighteen-month experience designed specifically for two-year college physics faculty in their first five years of teaching. This conference is designed to empower new two-year college faculty members as they embark on the important mission of developing critical thinking skills in their students many of whom will become the future technological workforce in the US.

Special Projects

AAPT has also been involved in many special projects in the broader physics and STEM community. Together with ten other STEM disciplinary societies, we are part of a Project Kaleidoscope project funded by FIPSE to increase student learning in undergraduate STEM courses and better prepare them for 21st century "Big Questions" that relate to real-world issues such as energy, air and water quality, and climate change. Over the next two years this project will develop materials and offer professional development for faculty to infuse sustainability into introductory STEM courses. In another project, AAPT secured NSF funding and provided administrative support for the US delegation that attended the 4th International Conference on Women in Physics in Stellenbosch, South Africa in April. This conference provided the opportunity for teams of physicists from across the globe to learn about the status of women in physics country-by-country, share success stories and identify persistent barriers impeding women in physics, and develop networks between scholars. The proceedings from the conference is anticipated to be published in 2012 and will include proposed strategies to improve the status of women in physics. Finally, a SPIN-UP regional workshop was held for physics faculty at Historically Black Colleges and Universities (HBCU) at Hampton University in May. Previous SPIN-UP regional workshops have focused on developing departmental physics programs to better serve their students and the institutions in which they reside. In addition to this goal, the Hampton workshop promoted collaboration among HBCU departments, considered major projects in research and education where such collaboration would be a benefit, identified resources from the federal agencies that fund research in physics, and developed the case for HBCU physics departments approaching agencies as a consortium.

PhysTEC Update

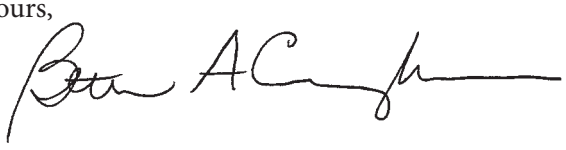
AAPT, in collaboration with APS, continues to have an active role in the PhysTEC project to improve and promote the education of future high school physics teachers. The project is almost midway through the latest NSF grant. For a report on the latest PhysTEC activities, see page 20.

AAPT Budget

I am particularly pleased that AAPT's financial status continues to improve. For the first time in many years AAPT had a positive bottom line in the operating budget. A number of painful decisions were made that impacted both the Executive Board and Executive Office staff to get us to this point. However, it appears that we have "turned the corner" and are headed to continued improvements to the budget. Membership is relatively stable and the journals continue to provide revenue for operations. The 2012 budget is balanced and we predict a slight surplus given the current economic conditions.

It has been my privilege to serve you, the members of AAPT, this year as Executive Officer. AAPT continues to provide leadership through the work of many AAPT members and volunteers to enrich the education and future employment prospects of all students. All of this is done in support of the organization's mission of "Enhancing the understanding and appreciation of physics through teaching." It is truly a joy to work with you. Thank you again for your support.

Sincerely yours,



Strategic Plan

The Association completed and approved a new 2010-2013 Strategic Plan. The plan, available in two verisons, with strategies (http://www.aapt.org/aboutaapt/organization/upload/101105-Strategic-Plan-Adopted-July-2010-with-strategies_1.pdf) and without strategies (http://www.aapt.org/aboutaapt/organization/upload/101105-Strategic-Plan-AdoptedJuly-2010-without-strategie.pdf), is available for members, sections, and committees to review as they align their programs and activities with the goals of AAPT.

The document reaffirms AAPT's committment to its:

Mission — To enhance the understanding and appreciation of physics through teaching.

Vision — Aspiring to advance the greater good through physics, AAPT strives to be the leading voice, primary resource, advocate of choice, and driving force in physics education, serving professionals who teach physics and support physics teaching at all levels.

Core Values — As a member-driven volunteer organization, the AAPT is guided by and committed to the following:

- Promoting excellence in physics education by supporting AAPT members and reaching out to all teachers of physics in their efforts to provide an effective physics learning experience for all students at all levels and in all teaching and learning environments—in the classroom, in the laboratory, and in public settings.
- Publishing exemplary journals (American Journal of Physics and The Physics Teacher) and providing other physics teaching resources that adhere to the highest standards in content, pedagogy, and technology.
- Providing and supporting quality professional development for physics teachers at all levels through meetings, topical conferences, and workshops.
- Supporting and disseminating research into how students learn physics.
- Ensuring excellence in physics instruction by promoting research-based education of future teachers of physics at all levels, elementary through graduate.
- Advocating for physics education at local, state, and national levels.
- Keeping aware of the main issues facing the physics world and of the overreaching questions to be tackled by the physics community, and providing a forum for discussion of these issues at National Meetings.

STRATEGIC GOALS

The 2010-2013 Strategic Plan includes goals that support the Mission, Vision, and Core Values in key operational areas:

AAPT MEMBERSHIP — To be a vibrant professional organization for those who teach physics at all levels. In broad terms, we seek to increase the net number of full dues paying regular members by 2.5% per year for the next five years.

AAPT PORTFOLIO: JOURNALS, MEETINGS, PROGRAMS AND AWARDS — To ensure that AAPT is providing the highest quality member services to support excellence in physics education and meeting the needs of its members. The AAPT will provide regular electronic communications, grants, journals, National Meetings, and awards. In addition to these primary services, the AAPT, individually and in cooperation with other physics and related professional associations, will undertake initiatives that advance the mission and vision of AAPT.

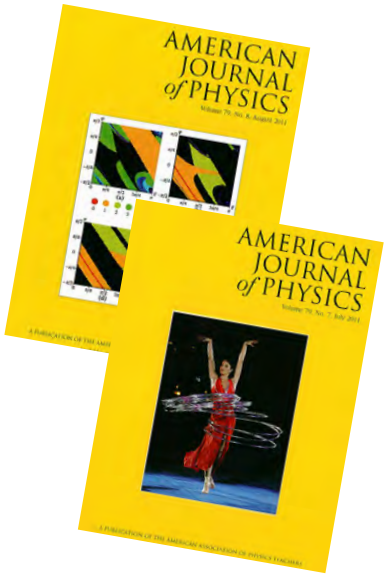
AAPT OPERATIONAL AND FINANCIAL HEALTH — To achieve and sustain a balanced operating budget by 2011; Build the Long Term Unrestricted Financial Reserve equal to one year of operating expenses; and Improve the operation and efficiency of the association.

AAPT SECTIONS AND AFFILIATE GROUPS —To be a vibrant professional organization dedicated to improving physics education at all levels by working with sections, affiliates, and other local groups.

AAPT AREA COMMITTEES —To expand the function that Area Committees serve in the Association to include advising the Executive Board on policy and on development of quality resources (e.g., Guidelines for …) consistent with the Committees' areas of interest, while continuing the traditional Committee role of developing quality programs for the annual meetings of the Association.

Publications

Having a strong publications program enables AAPT members to obtain greater insight into physics and learn about new teaching methods.



American Journal of Physics (ajp.aapt.org)

The *American Journal of Physics (AJP)* transitioned to a new editor in September, 2011. AJP continued to inform physics education globally with member subscriptions, institutional subscriptions, such as libraries and physics departments, and consortia agreements. The 6,606 subscriptions served the following education sectors:

Pre-College 24.5%	College/University 56.0%
Student/Unemployed 7.8%	Non-Teaching 11.6%
Other .01%	

The rate of submission to *AJP* has been increasing and is now over 850 per year. The acceptance rate of regular articles is about 20%.

Editors

Jan Tobochnik, *Editor, Kalamazoo College (through August 31, 2011)*
David P. Jackson, *Editor, Dickinson College (beginning September 1, 2011)*
Harvey Gould, *Associate Editor, Clark University*

Resource Letters

AJP periodically publishes Resource Letters on topics that are of interest to college and university physicists, astronomers, and other scientists who wish to improve their courses or to serve as bridges for those who are moving into new areas of teaching or research. Six were published in 2011. Resource Letters Editorial Board: Kimball A. Milton, Rosemary Wyse, Amy Joanne Kolan, Harvey S. Leff, Richard W. Peterson, Jean-Francois S. Van Huele, Rexford E. Adelberger, Amy S. Mulin, William I Newman, and Ryan E. Doezema

Research in Physics Education

AJP also includes research papers that describe findings in the area of physics education research (PER) and are accessible to a broad physics readership. A special section is further devoted to PER papers. In 2011 there were six papers published.

Apparatus and Demonstration Notes

In this section, *AJP* publishes brief communications reporting new demonstrations, laboratory equipment, techniques, or materials of interest to teachers of physics. In 2011, *AJP* published five such reports.

Book Reviews

In addition, *AJP* publishes book reviews regularly on physics topics including the history of physics. Twenty-two book reviews appeared in 2011.

Consulting Editors
David Griffiths
Reed College
Barry R. Holstein
University of Massachusetts
John Mallinckrodt
California State Polytechnic University Pomona
William J. Mullin
University of Massachusetts

Apparatus and Demonstrations Notes Editor
Frank L. H. Wolfs
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The Physics Teacher (tpt.aapt.org)

Now in its twelfth year under the editorship of Karl Mamola, *The Physics Teacher (TPT)* continues the mandate of supporting, inspiring, and challenging our target audience—high school and college teachers of introductory physics—as well as our many other readers. Several papers, this year, were supplemented by computer models from the Open Source Physics Collection at ComPADRE's National Science Digital Library. These articles included a link to the accompanying Java simulation, along with a brief explanation about and screenshot of the model. Work has begun with potential authors to create interactive articles that utilize the next-generation capabilities of the new platform and tools offered with the online version of *TPT* at http://tpt.aapt.org.

Editor

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North Carolina State University

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Old Dominion University

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Watauga High School

Little Gems
Chris Chiaverina
New Trier High School

Physics Challenge for Teachers and Students
Boris Korsunsky
Weston High School, Weston, MA

Websights
Dan MacIsaac
SUNY-Buffalo State College, Buffalo

YouTube Physics
Diane Riendeau
Deerfield High School

The Physics Teacher Statistics

- 9 issues—January–May, September–December 2011 (Volume 49)
- 590 pages, 170 reviewers, 144 papers, and 92 contributions to monthly columns (60 international authors/co-authors)—35% acceptance rate
- 8,958 subscriptions
- Approximately 46% of subscribers teach at the college and university level and 42% teach at the high school level. The remaining 12% are scientists at research facilities, students, and other interested members of the physics community.

Editorial Staff

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Boone, NC

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Boone, NC

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Boone, NC

Electronic Communications

AAPT.org

Having strong online publications offers AAPT members convenient access to physics education resources, news, and member benefits. AAPT.org, redesigned in 2009, continues to emphasize ease-of-access and user-friendliness, and aims to be more inviting to new visitors. The home page includes a "Features" area with photos and information pertaining to upcoming or ongoing programs, projects, events, and resources; and a "Welcome" box that gives new and returning visitors quick links to information that may be pertinent to them. Further down the page is a "navigation by audience" that guides visitors based on their role in the physics education community. The bottom half of the home page is split into a news section, and sections that encourage visitors to get involved with the association and provide information about what AAPT does.

Features

AAPT.org organizes the association's many assets into appropriate categories allowing the user (both members and non-members) to easily access information regarding topical news, governance, member benefits and profiles, conferences and workshops, awards, publications, local sections, teaching and student resources, partners, giving, and marketing opportunities.

Added features include a redesign of The Physics Store, and the birth of the eMentoring program. The Physics Store acquired a new look with a logo and layout incorporating a product title search and featured sales and products. The eMentoring program connects high school physics educators who desire additional guidance with experienced high school physics educators—online and FREE of charge.

What's next?

Efforts to enhance AAPT.org are ongoing and numerous. Some areas of activity are the session/workshop process, area committee reports, awards nominations, online advertising, and member recruitment.
An effort to record, share, and preserve audiovisual "Story Files" is in the works for the 2011 Summer Meeting.

For 2011 aapt.org had:

- 383,223 visits
- 1,590,169 pageviews
- 4.15 pages per visit
- 231,202 new visitors

All from 205 countries/territories

1. U.S.
2. Canada
3. India
4. Australia
5. Pakistan

Social Networking

AAPT continues to open the channels of communication and community using online social networking platforms. Below is a list of online social networks AAPT uses:

- facebook.com/AAPTHQ
- twitter.com/AAPTHQ
- flickr.com/physicsteachers
- youtube.com/physicsteachers
- pinterest.com/AAPTHQ/

Google Search

A new google search feature at the top right of every page allows for easy searches yielding more robust results.

Executive Dashboard

A web-based executive dashboard system is being developed to provide AAPT with a method to compare performance goals to actual results. This will allow users to monitor and analyze data originating from the efforts of various departments. Data will be displayed on the user's desktop using a variety of graphical plots and lists. Data from membership, marketing, finance, programs & conferences, and communications will be available to inform strategic decisions.

eNNOUNCER

As of November 2011 the online-only news publication and email newsletter, *eNNOUNCER,* has been sent to member inboxes for 3 years. Distributed to members by e-mail, *eNNOUNCER* issues are published at the beginning of each month and archived on AAPT.org. The *eNNOUNCER* contains dates and deadlines for upcoming conferences, meetings, symposiums and events, member news and information, and recent news from the worlds of physics and teaching. Topics covered include organization specific items, action items and notable dates, news from the AAPT Executive Office, member news, section news, recommended reading, and science and education news.

2011 Top AAPT News Stories

Listed below are highlighted news stories for 2010 from the *eNNOUNCER*.
To read the full story go to http://www.aapt.org/aboutaapt/ennouncer/index.cfm.

January
Executive Officer Transition
WM11 Symposium on Education Policy: Having an Impact, Improving the Landscape

February
Seeking a New Editor for American Journal of Physics
"7 Myths About High School Physics" Brochure

March
AAPT Advocates for Science Education Funding
AAPT/PTRA Receives APS 2011 Excellence in Physics Education Award

April
Laser Safety Workshop at 2011 Summer Meeting

May
Member Needs Assessment Survey
4th International Conference for Women in Physics

June
2011 U.S. Physics Team Chosen
PTRA Receives APS Excellence in Physics Education Award

July
Summer 2011 Meeting in Omaha, NE
100th Anniversary of Superconductivity Discovery

August
2011 U.S. Physics Team Wins Two Gold and Three Silver Medals
NRC K-12 Framework Report
Samuel Gousmit Papers in Niels Bohr Library

September
Robert C. Hilborn Named as Associate Executive Officer
Story Files Project Launched during Summer Meeting
Call for Editor, Physical Review Special Topics: Physics Education Research

October
AAPT National Election
Winter Meeting Preview and Awards Announced

November
2011 Nobel Prize Winners
Call for Action to Support NSF Funding
Grant and Scholarship Deadlines

December
Symposium on Education Policy - Physics Education Research and Public Policy
AAPT National Election Results

eNNOUNCER Topics

eNNOUNCER publishes monthly news for members including:

- Recent AAPT related events and programs
- Members in the news
- Section news
- Workshops and topical conferences
- Scholarship and fellowship announcements
- Awards announcements
- Science related festivals
- Video and photo contests
- Career and teaching opportunities

Membership

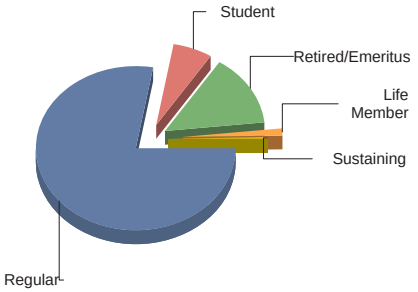
Spanning academia, research, and industry; comprised of educators, Nobel Prize winners, and students alike; our members bring a wealth of experience, diversity, and individual recognition. Most importantly, all share the same dedication to physics and the physics education community.

Membership Statistics

for December 31, 2011

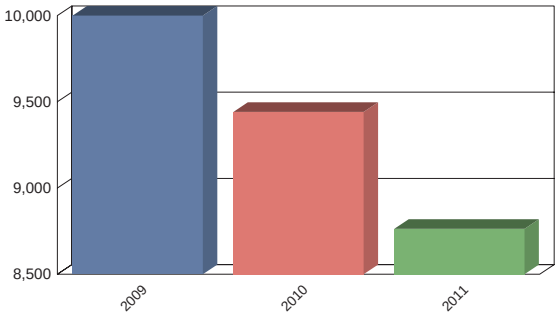
Membership by Member Type

Regular	6,821
Life Member	125
Student	562
Sustaining	25
Retired/Emeritus	1,230
Current Membership:	**8,763**



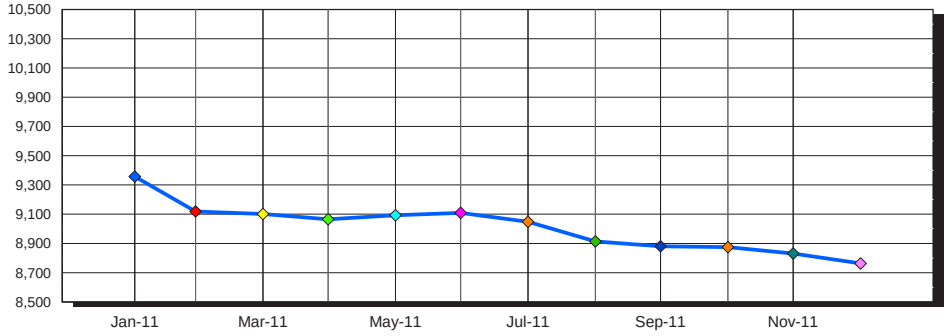
Regular	77.8%
Student	6.4%
Retired/Emeritus	14.0%
Life Member	1.4%
Sustaining	0.3%
Total:	100.0%

Membership Comparison by Month and Year



Dec - 2009	Dec - 2010	Dec - 2011
10,041	9,441	8,763

Year to Date Membership Trends



National Meetings

Winter Meeting—*100 Years of Nuclear Physics*

January 8–12, 2011, Jacksonville, Florida

Jill Marshall, Program Committee Chair

Paper Sorters: Jill Marshall, Program Chair, David Brookes, Trina Cannon, Jan Mader, David Sturm, and Gary White

Local organizers: Dr. Paul R. Simony, Chair, Jacksonvillle University, Department of Physics

Plenaries

AAPT Symposium on Physics Education and Education Policy: "Having an Impact, Improving the Landscape," Michael Lach, Stephen Pruitt

Opening Plenary: Meet Beth Cunningham, AAPT Executive Officer

100 Years of Nuclear Physics
Ernest Rutherford and the Accelerator: "A Million Volts in a Soapbox," H. Frederick Dylla and Steven T. Corneliussen

The State of the Art in Nuclear Power: Breeder Reactors and Beyond, Kenneth L. Peddicord

State-of-the-Art Nuclear Medicine: Proton Therapy, Nancy Mendenhall

Awards

Oersted Medal, F. James Rutherford, UC Berkeley,

Richtmyer Memorial Award, Kathryn Moler, Stanford University

AAPT Distinguished Service Citations, Dwain M. Desbien, Jane Bray Nelson, Gordon P. Ramsey, Sam Sampere

Statistics:

There were 742 attendees, 33 exhibitors, 72 sessions, 18 workshops, 2 tutorials, and 148 posters

Highlights

This was Dr. Beth A. Cunningham's first meeting as AAPT's new Executive Officer. Former AAPT President, Lila Adair introduced Beth to the attendees.

AIP Executive Director, Fred Dylla, gave the Opening Plenary in celebration of the meeting theme, "100 Years of Nuclear Physics." His address, Ernest Rutherford and the Accelerator: "A Million Volts in a Soapbox," set against the backdrop of a century's progress in nuclear and particle physics, presented the extraordinary range of applications for the planet's more than 30,000 accelerators, not only in discovery science, but in medicine, industry, energy, the environment, and national security.

The meeting highlights began with the University of Florida Proton Therapy Institute Tour. Dr. Zuofeng Li, Physics Director, gave an excellent tour, describing the principles of proton therapy, comparing it to X-ray treatments, explaining the clinical aspects, and showing the cyclotron, beamline, and patient rooms. Dr. Nancy Mendenhall gave an excellent plenary on State of the Art Nuclear Medicine: Proton Therapy on Wednesday.

The opening reception brought an unexpected treat: glass harpist extraordinaire, Jamey Turner delighted attendees with an impromptu concert organized by President Elect David Sokoloff.

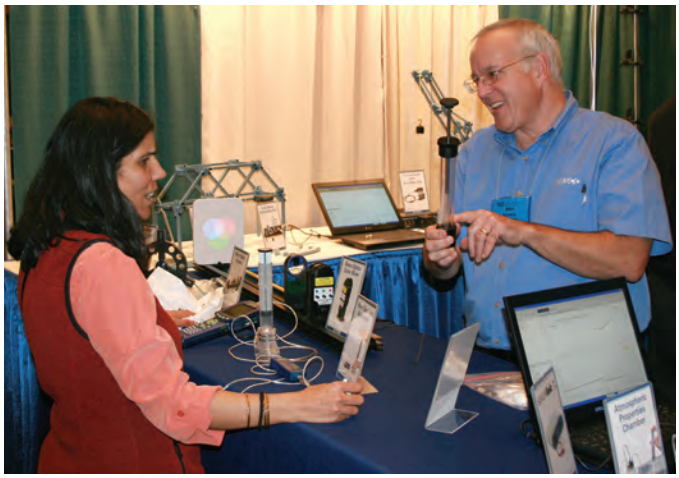
The 2011 Oersted Medal was presented to James Rutherford, UC Berkeley. His talk, "The Particle Enigma: High School Physics, and the Search for Scientific Literacy," focused on physics as essential for achieving scientific literacy. He was joined by Galileo's interlocutors from the Dialogue Concerning the Two Chief World Systems: Salviati, Simplicio, and Sagreda.

During the Awards Ceremony AAPT recognized four outstanding members with Distinguished Service Citations, Dwain Desbien (Estrella Mountain Community College, Avondale, AZ), Jane Bray Nelson (Santa Fe College, Gainsville, FL), Gordon Ramsey (Loyola University, Chicago, IL), and Sam Sampere (Syracuse University, Syracuse, NY). SPS presented the Outstanding Chapter Advisor Award to DJ Wagner of Grove City College.

Another last minute windfall was an opportunity to bend the ear of Michael Lach, head of the US Department of Energy STEM initiative, who requested ideas from high school teachers at a special roundtable discussion.

Lach was part of the excellent Symposium on Physics Education and Education Policy, "Having an Impact, Improving the Landscape," Tuesday afternoon. Stephen Pruitt, Vice President for Content, Research and Development for Achieve shared the Symposium podium with Lach as they discussed the direction of current education policy and took questions from the audience.

We had nearly perfect weather for the Walk/Run with 20 runners and walkers. Bo Hammer was first in, with Brian Pyper close on his heels. Thanks go to the Jacksonville Track Club runners who escorted us on the Run/Walk.



Attendees learned so much from the variety of sessions at this meeting from "Statistical Analyses of Complicated Data" to tutorials on sequential linear regression (and what it can tell us about self efficacy and gender) and how to do factor analysis (the right way.)

The Minority Bridge Program Crackerbarrel, a brief overview of the APS Minority Bridge Project was presented, followed by a lively discussion of issues that such programs face. Faculty members from several minority serving institutions and doctoral granting institutions were present, and considerable enthusiasm was expressed about the benefits of such a project, as well as questions of how to insure inclusiveness.

The Richtmyer Memorial Award was presented to Katheryn Moler, Stanford Univeristy. Her talk, "Quantum Whirlpools: Tiny Vortices of Tireless Electrons," explained what it means to say that electrons are "Wavelike," how we know that they really are, the conceptual difference between wavelike electrons vs. wavelike multi-electron states, and why the wavelike nature of the super-conducting state means that quantum votices could exist.

Marie Curie (alias Susan Marie Fronczak) had to brave winter snow and flight cancellations to join us in Jacksonville. Susan Marie gave a truly memorable performance Tuesday night as the great physicist herself.

Rutherford and nuclear physics figured prominently throughout, K. Lee Peddicord of the Texas A&M Nuclear Power Institute,enlightened us about Nuclear Power: Breeder Reactors and Beyond and on Wednesday afternoon there was a session on "Rutherford: His Life and Legacy." From beginning to end this meeting proved to be a fitting tribute to 100 years of nuclear physics.

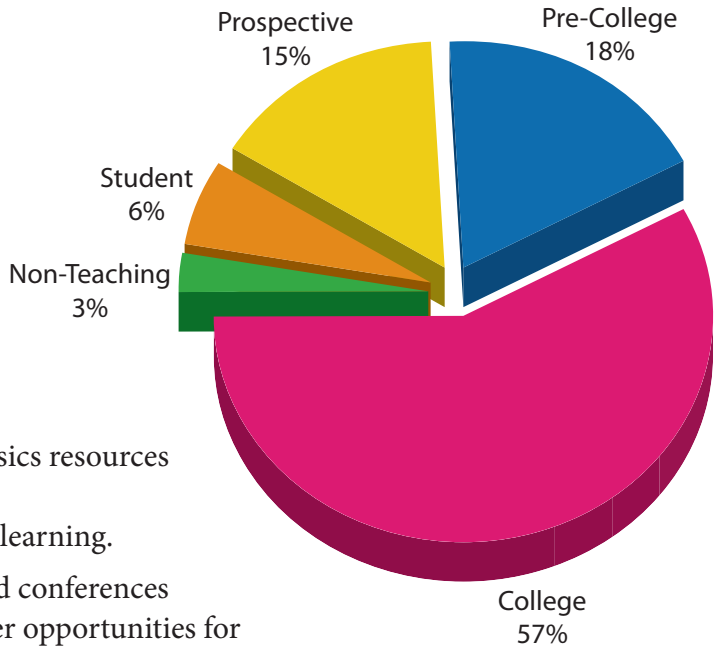
Meeting Statistics

More than 1000 physics educators, researchers, and students attend the Annual AAPT Meetings.

These National Meetings, held each winter and summer, are opportunities for members, colleagues, and future physicists from around the world to:

- participate in physics workshops
- meet and greet other physics educators
- form networks nationally and locally
- engage exhibitors and learn about the latest physics resources
- discuss innovations in teaching methods
- share the results of research about teaching and learning.

AAPT also hosts or supports smaller workshops and conferences and symposia throughout the year to provide further opportunities for professional development and knowledge sharing.



Summer Meeting—*Communicating Physics Outside the Classroom*

July 30–August 3, Creighton University, Omaha, Nebraska

Jill Marshall, Program Committee Chair

Paper Sorters: David Sturm, Dyan McBride, Gay B. Stewart, MacKenzie Stetzer, Warren Christensen

Local organizers: Jack Gabel, Assistant Professor, Janet Seger, Chair, Department of Physics, Creighton University

Plenaries

Reaching Out to the Public—A Necessary Dialogue, James H. Stith

APS Division of Condensed Matter Physics Session: Frontiers in Nanoscience

A Perspective on the Future of Nanotechnology, Barbara Jones, Almaden Research Ctr, San Jose, CA

Etch-a-Sketch Nanoelectronics, University of Pittsburgh, Pittsburgh, PA

Awards

Robert A. Millikan Medal, Brian Jones, Colorado State University, Fort Collins, CO

Klopsteg Memorial Lecture Award, James E. Hansen, NASA Goddard Insitute for Space Studies, New York, NY

The David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching, Edward E. Prather, University of Arizona, Tucson, AZ

The Paul W. Zitzewitz Award for Excellence in Pre-College Physics Teaching, Stacy McCormack, Penn High School, Mishawaka, IN.

AAPT Distinguished Service Citations, Drew Isola, Todd Leif, John L. Roeder, R. Steven Turley

Statistics: There were 934 attendees, 20 exhibitors, 62 sessions, 36 workshops, and 178 posters.

Highlights

Summer 2011 was a "hot" meeting in many ways! The temperature was either a pleasant break or a challenge depending on what part of the country you came from.

Omaha's Creighton University rolled out the red carpet, hosting AAPT and opening their beautiful campus to Summer Meeting attendees.

Metropolitan Community College hosted a Two-Year College dinner at their historic Fort Omaha Campus. After a brief tour of the new building, which includes many state-of-the-art spaces for teaching culinary arts, Ollie the Trolley took the group on a short tour of the historic Fort Omaha campus before returning to Creighton and the hotel.

The Run/Walkers started early and followed a beautiful course through Heartland of American Park, complete with swans and fountains, and then on to the stunning Kerrey Pedestrian Bridge, which led over the Missouri River to Iowa and back. Afterwards, students from Bennington High School treated participants to a healthy breakfast to start the day right.

Throughout the meeting Creighton University hosted "Omaha Energy Tour," a tour of their alternative energy installations, initiative, and shared ideas for developing curriculum around this critical and timely topic. The project is part of an NSF-sponsored initiative funded by a grant from the Department of Energy.

The tour of the world-class Henry Doorly Zoo was another highlight with its views of open jungle habitat viewed from the Sky-fari tram, a creatures of the night exhibit complete with swamp dwellers and bats, and a huge geodesic dome—with a desert inside!

The High School Physics Photo Contest, sponsored by Vernier, is always a favorite part of the event. Attendees were able to vote on this year's winning entries. The "First-timers" day for high school physics teachers, featured special sessions on what AAPT has to offer.

The Apparatus Competition, sponsored by the Area Committee on Apparatus and PASCO, continue to be a source of new inspiration. Whether developed to pique the interest of students, used in lecture and demonstration, or simply used to help teach physics in new or fascinating ways, teachers are continually engineering apparatus to aid physics instruction. The Apparatus Competition provides an opportunity for them to share their apparatus and receive recognition for their ideas.

In his 2011 Millikan Medal talk, All I Really Need to

Know About Physics Education I Learned in Kindergarten, Brian Jones shared the wonders of the Little Shop of Physics, toured by thousands of visitors during its most recent open house, and made some of its marvelous demos available for viewing on Tuesday afternoon.

The American Institute for Physics (AIP) presented the Children's Science Writing Award during the Opening Plenary. The 2011 winner was Canadian author, Gillian Richardson for her book, "Kaboom! Explosions of All Kinds."

Edward E. Prather was recognized with the first David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching. John Wiley & Sons is the principal funder of this award through its donation to AAPT. Prather's talk, "Teaching Space Science: A STEM Transformation Vehicle that Really Works," shared a decade of experience working closely with hundreds of college instructors, postdocs, graduate students, and undergrads in collaborative projects designed to understand issues of teaching and learning in college-level general education space science courses. The research results from these collaborations have been used to transform classrooms all over the country, creating learning environments that can significantly impact learners' science literacy and engagement in STEM.

The Paul W. Zitzewitz Award for Excellence in Pre-College Physics Teaching went to Stacy McCormack. Her talk, "Blond Girls Can't Learn Physics," addresses the way she overcame stereotypes and became a physics teacher. Stacy designed a guided-inquiry style high school physics class at Penn High School in Mishawaka, IN, that is lab-driven, student-centered, and uses numerous formative assessments to guide student learning. Now the 2011 Indiana State Teacher of the Year and an online adjunct instructor of Astronomy, Physics, and Physical Science classes for Ivy Tech Community College in South Bend, IN, Stacy shares her inexpensively created labs in a book for physics teachers titled "Teacher Friendly Physics."

The APS Division of Condensed Matter Physics contributed a session on Frontiers in Nanoscience. Plenary Speaker Barbara Jones shared her Perspective on the Future of Nanotechnology and stayed for the SPS Award Session where she discussed research with students and helped to model the solar system with Spandex. Jeremy Levy gave an insightful talk on Etch-a-Sketch Nanoelectronics, using the childhood toy to illustrate state of the art advances.

The Poster Sessions are usually very popular and this year's sessions were no exception. Nearly 200 posters were presented in AAPT and SPS sessions. Topics covered ranged from Astronomy to Upper Division and Graduate Education.

Another "hot" session was Research on Undergraduate Mathematics Education, which was still being talked about into the PERC.

In the Big Bang Effect, sponsored by Women in Physics, we got tips on how to not be "Such a Scientist! (Talking Substance in an Age of Style)" and learned that not all evil geniuses are alike. We also had opportunities to discuss the hot-off the-presses NRC A Framework for K-12 Science Education: Practices, Crosscutting concepts, and Core Ideas, at both an impromptu feedback forum with over 30 in attendance and at a well attended session, where Patricia Heller provided an excellent overview of the issues.

Wednesday had some great PER sessions bridging to the Physics Education Research Conference, including one on PER in the High School, which featured high school teachers doing exceptional research in conjunction with the Colorado learning assistants program. Another very interesting Wednesday session was dedicated to cheating in physics homework assignments, its consequences and ways to minimize it.

All of the plenary sessions were 'sizzling,' from Jim Stith's excellent opening talk, which issued a challenge to us all to become better communicators of science with the public, to James Hansen's standing room only Klopsteg lecture.

All of the plenary sessions were 'sizzling,' from Jim Stith's excellent opening talk, which issued a challenge to us all to become better communicators of science with the public, to James Hansen's standing room only Klopsteg lecture, "Halting Human-made Climate Change:The Case for Young People and Nature," on Wednesday.

AAPT recognized dedication and performance of four outstanding members at the Award Plenary, The AAPT Distinguished Service Citation was presented to Drew Isola, Todd Leif, Steve Turley, and John Roeder.

It was a "hot" meeting from start to finish!

Workshops and Programs

Workshop for New Physics and Astronomy Faculty

June 27-30 and Nov. 17-20, 2011 at the American Center for Physics

AAPT, in conjunction with the American Astronomical Society (AAS) and the American Physical Society (APS), held two workshops for new physics and astronomy faculty members at the American Center for Physics. These workshops helped nearly 200 new faculty understand how students learn physics and astronomy, and suggested how this information can impact a new professor's teaching methods. The workshops are intended for faculty in the first few years of their initial tenure-track appointment at a four-year college or university.

workshop for new physics and astronomy faculty

Each spring and fall, department chairs at research and four-year institutions are asked to nominate tenure-track faculty in the first few years of their initial appointment. The ideal candidate would have a year or two of teaching experience so that they are aware of the challenges of the first year of teaching.

This program is funded by grants # DUE-0813481, DUE-0121384, and DUE-9554738 from the National Science Foundation. Read more online at: **www.aapt.org/Conferences/newfaculty/**

Physics Teacher Resource Agents (AAPT/PTRA) Program

The AAPT/PTRA program maintains a nationwide cadre of more than 150 accomplished high school teacher-leaders who are trained and continually involved in professional development. These teacher-leaders are certified as PTRAs by AAPT to lead workshops throughout the country. These 150 experienced PTRAs have participated in national leadership institutes where they have developed their skills on a wide range of topics—to assist their fellow teachers. The program has involved more than 30 universities and college physics departments partnering to provide the summer institutes and follow-up sessions.

AAPT/PTRA Program receives American Physical Society 2011 Excellence in Physics Education Award.

The American Physical Society announced that the AAPT Physics Teaching Resource Agents Program has been awarded the 2011 Excellence in Physics Education Award. George Amann, Lawrence Bader, Robert Clark, Jan Mader, Karen Jo Mastler, and Jim Nelson were invited to represent PTRA and receive the award during the April 2011 APS meeting.

The Award was established to recognize and honor a team or group of individuals (such as a collaboration), or exceptionally a single individual, who have exhibited a sustained commitment to excellence in physics education. It consists of $5,000 and a certificate. The citation on the certificate reads as follows:

"For providing peer-led professional development for 25 years to more than 5000 physics and physical science teachers nationwide through a network of more than 500 master teachers."

2011 PTRA Directors:

George Amann
Jan Mader
Karen Jo Matsler
Jim Nelson

Read more online at: **www.aapt.org/Programs/projects/PTRA/index.cfm**

2011 United States Physics Team

Twenty students from across the U.S. emerged through a rigorous exam process that began in January with approximately 4,000 students who participated in the Fnet=ma exam to become the 2011 U.S. Physics Team (http://www.aapt.org/physicsteam/team.cfm). These students continued to train at a 10-day Training Camp for the mentally grueling exams and lab tests they faced at the 42nd International Physics Olympiad, held July 10 to 17 in Bangkok, Thailand. The 2011 Training Camp included a visit to Capitol Hill and meetings with the congressional physicists.

Read more at: **www.aapt.org/physicsteam/2011**

The traveling team, from left to right, Ante Qu, Lucy Chen, Andrew Das Sarma, Eric Schneider, and Brian Zhang brought home two gold medals, 3 silver medals. The proud coaches flanking the students and are, Paul Stanley (left) and Warren Turner (right).

U.S. Team Members
Lucy Chen, Ames IA; Andrew Das Sarma, Silver Spring, MD; Calvin Deng, Raleigh, NC; Adam Jermyn, Longmeadow, MA; Yota Kato, Stanford, CA; Brian Kong, Milton, MA; Benjamin Li, Arcadia, CA; Jonathan Li, San Juan Capistrano CA; Yi Li, Arcadia CA; Jonathan Li, San Juan Capistrano, CA; Peter Lu, Aurora, IL; Ante Qu, Princeton Junction, NJ; Eric Schneider, Lincroft, NJ; Sadik Shahidain, Princeton, NJ; Bobby Shen, Sugar Land, TX; Utsarga Sikder, Monmouth Junction, NJ; Eric Spieglan, Naperville, IL; Albert Wu, San Yose, CA; May Yang, Libertyville, IL; Ryan Yoo, Los Angeles, CA; Brian Zhang, Palo Alto, CA; Andrew Zhao, Webster, NY
Academic Director: Paul Stanley
Academic Coaches: Jia Jia Dong, David Fallest, and Andrew Linn
Lab Coaches: Warren Turner, Senior Lab Coach; Qui Zi Li, Assistant Lab Coach

AAPT Physics Bowl

This year there were almost 4500 students participating from approximately 225 schools across the United States and Canada as well as a school in China. Michael C. Faleski served as the PhysicsBowl Academic Coordinator.

Read more at: **www.aapt.org/Programs/contests/physicsbowl.cfm**

2011 Top 10 Overall Winners

#	Score	Student, School, City, State
1	39	Henry Meng, Millburn High School, Millburn, NJ
2	38	Mo Luo, Mission San Jose High School, Fremont, CA
3	37	Victor A. Ying, Richard Montgomery High School, Rockville, MD
4	36	Samuel Zbarsky, Montgomery Blair High School, Silver Spring, MD
5	36	Edward S. Park, Walton High School, Marietta, GA
6	35	Yalum Zhang, Walnut High School, Walnut, CA
7	35	Jeffrey Sun, Mission San Jose High School, Fremont, CA
8	35	Benjamin Li, Arcadia High School, Arcadia, CA
9	35	Joseph R. Scherrer, Montgomery Bell Academy, Nashville, TN
10	35	Alexander Bourzutschky, Montgomery Blair High School, Silver Spring, MD

Physics Bowl Sponsors

AAPT
Pasco Scientific
Frey Scientific
Vernier Software & Technology
Texas Instruments
Princeton University Press
John Wiley & Sons
Educational Innovations, Inc

PhysicsBowl Advisory Board

Michael Bush, Beverly Trina Cannon, Michael C. Faleski, Andrzej Sokolowski, and Courtney Willis

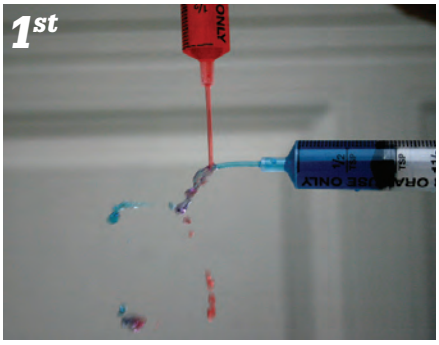
2011 High School Physics Photo Contest

The High School Physics Photo Contest is open to high school students in grades 9-12 (or equivalent international grade level). Photos may be entered in one of the categories described below, and are judged on the quality of the photo and the accuracy of the physics in the explanation that accompanies the photograph. Out of 1059 submissions, the 100 finalist photos were selected, displayed, and judged during the 2011 Summer Meeting. See **www.aapt.org/Programs/contests/winners.cfm?theyear=2011** for information on the following overall winners of 2011.

2011 Winners

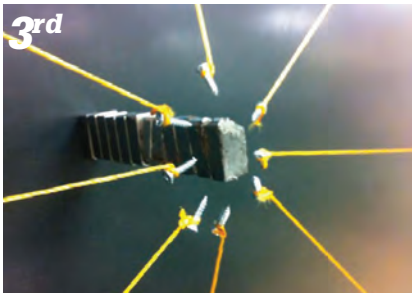
Contrived photos are those that are set up to show a particular physics concept or related set of concepts. Contrived photos represent non-spontaneous events.

1st

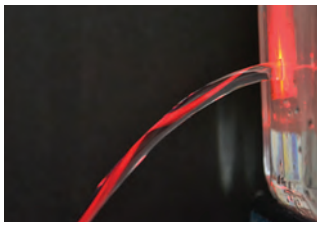


2nd

3rd



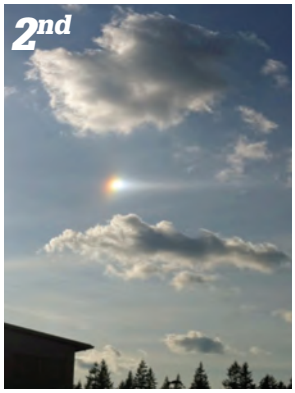
Honorable Mention



Natural photos are those that involve everyday situations that may demonstrate a variety of physics concepts. Any spontaneous event is considered natural.

1st

2nd



3rd

Honorable Mention

high school physics photo contest

Collaborative Projects

Team America Rocketry Challenge

AAPT continued its support as the sole educational partner for the world's largest rocket contest, the Team America Rocketry Challenge (TARC). TARC is also sponsored by the Aerospace Industries Association (AIA), the National Association of Rocketry (NAR), NASA, the Defense Department, and AIA member companies. TARC is an opportunity for science enthusiasts to work together as teams to build and launch rockets, with a chance to win more than $60,000 in scholarships and prizes.
Winners: http://www.rocketcontest.org/scores11.cfm.

International Science and Engineering Fair

May 8-13, 2011 in Los Angeles, CA
AAPT/APS Special Awards in Physics and Astronomy at the International Science and Engineering Fair (ISEF) were announced during the awards ceremony at the conclusion of the fair. The competition, held in a different city each May, is the only international science project competition for students in grades 9 through 12. Students qualify to compete by participating in school, local, regional, and/or state science fairs.
Judges: Roger R. McNeil, Terry L. Schalk, Alexander A. Grillo, Thomas Himel

Top award winners receive a one-year AAPT and APS student membership, a certificate from both AAPT and APS, as well as subscriptions to AAPT's *The Physics Teacher* and select APS journals. Each sponsoring teacher of a student who receives an AAPT and APS award also receives a certificate.

First Award of $1,200: ***The Flow Feature Around Insects and Bionic Wing Based on Wind Tunnel Test***
Yimeng Shi, The High School Affiliated to Renmin University of China, Beijing, China

Second Award of $800: ***The Engineering of a Novel Magnetic Levitation Train Propulsion System Through the Application of a Coil Current Gradient***
Christopher Joseph Davlantes Bishop Kenny High School, Jacksonville, Florida

Third Award of $500: ***Detection of Radioactive Isotopes in the Radon Decay Chain Using a Homemade Ion Chamber***
Lois Therese Gagnon, Gagnon Family Homeschool, Goodrich, Michigan

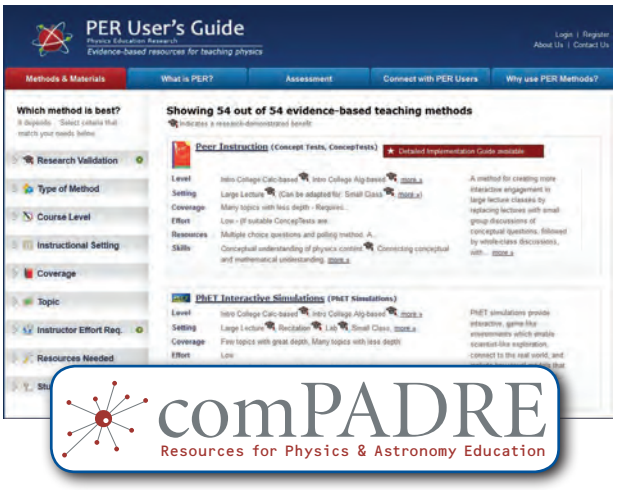
Certificate of Honorable Mention
Determining "Hot spots" Through Correlations of CMEs and Solar Flares, Travis Le, Punahou School, Honolulu, Hawaii
The Close Binary Fraction: A Bayesian Analysis of SDSS M. Dwarf Spectra, Benjamin Mathias Clark, Penn Manor High School, Millersville, Pennsylvania
The Desk Model of a Multilayer Magnetic Nanoparticle, Lev Yurovskiy and Grigory Astretsov, Nizhniy Novgorod, Nizhegorodskaya, Russia

Physics Days at NSTA

Local AAPT Sections hosted Physics Day at nearby NSTA area meetings held in Seattle, Washington, New Orleans, Louisiana, and Hartford, Connecticut.

The Physics Day programs offered a full day of physics content at each NSTA area conference. Physics Day consists of presentations on physics topics of current interest, physics demonstrations for the pre-college classroom, and a make 'n take session where participants can construct a piece of physics apparatus for use as a demonstration or laboratory experiment. AAPT sent a representative to each event, shared appropriate materials, and recruited science teachers as members of the association.

ComPADRE



As it approaches its tenth anniversary, the ComPADRE library continues to provide millions of visitors each month with a broad spectrum of resources for physics educators and students. The ComPADRE project started as a collaborative partnership of four professional societies on an NSF proposal, and it continues to expand through collaboration with others.

Some New Projects:
The PER User's Guide, a new web site developed by Sarah McKagan, members of the PER Community, and the ComPADRE staff, provides answers to instructor's questions about the results of physics education research. It is designed to give searchable and readable explanations of research-based teaching methods and resources. This collection will continue to expand with more in-depth guides to effective use of these teaching methods and assessment tools.

In the summer of 2012, ComPADRE hosted the web presence for the "Laboratory Instruction Beyond the First Year" conference. This has resulted in all of the workshop materials, papers, posters, and discussions being archived and available for use by the physics laboratory community. The next step in this work is to bring together experts on specific laboratory-related areas to build material collections focused on particular topics.

Continuing Efforts:
The Physics Classroom, an introductory physics tutorial web site developed by Tom Henderson and hosted by ComPADRE continues to be highly popular. The Open Source Physics collection of freely adoptable and adaptable computer-model-based learning resources is used by physicists around the world. Work with the PER Community, including hosting the annual Physics Education Research Conference, brings important materials to the library. Similarly, the partnership with the APS/AAPT PhysTEC program adds valuable materials to ComPADRE. The partnership with the Society of Physics Students on Adopt-a-Physicist events and the Research Opportunity Database are two important outreach efforts to students and future physicists. Finally, our editors continue to organize and expand our education resource collections.

Finally, we wish to thank the Physics Academic Software Publishing Organization board for their generous donation to the continuing support and growth of ComPADRE.

Physics Education Research (PER)

PER Conference 2011—Omaha, Nebraska

Theme: *Frontiers in Assessment: Instrumentation, Goals, and Practices*

227 attendees

Organizing Committee: David Brookes, Florida International University; Brian Frank, University of Maine; Elizabeth Gire, University of Memphis; Matty Lau, University of Pittsburgh; and Noah Podolefsky, University of Colorado.

Bridging Session:

Assessment Lessons from K-12 Education Research: Knowledge Representation, Learning, and Motivation, Lorrie Shepard, University of Colorado at Boulder

Complex Interactions Between Formative Assessment, Technology, and Classroom Practices, Edward Price, California State University-San Marcos

Plenary sessions:

Research and Development of Enhanced Assessment Tools for Chemistry Education
Thomas A. Holme, Iowa State University

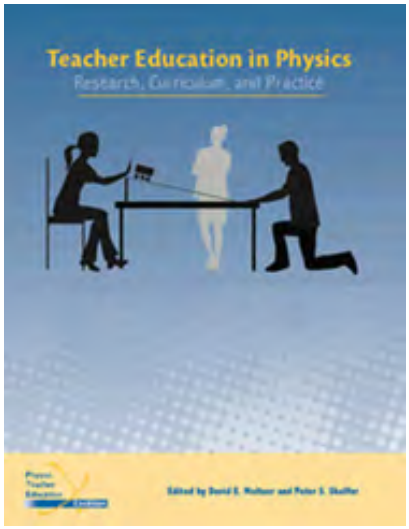
Defining and Assessing Competence in Science: Lessons learned the Hard Way
James W. Pellegrino, University of Illinois at Chicago

Student Engagement in Disciplinary Assessment
Janet E. Coffey, University of Maryland, Co-author: David Hammer

PER Leadership Organizing Council

John Thomson, Chair
Eugenia Etkina, Vice Chair
Jose Mestre (treasurer)
Andy Elby
Danielle Harlow
Laura McCullough
Andrew Heckler, ex officio (chair of AAPT Research in Physics Education Committee)

New PhysTEC Publication — Teacher Education in Physics: Research, Curriculum, and Practice



The Physics Teacher Education Coalition (PhysTEC) published a compendium of research articles on the preparation of physics and physical-science teachers, *Teacher Education in Physics*. This book came about due to an increasing national recognition of a need for improved preparation of physics and physical science teachers. Although there is an extensive and growing body of research and research-based practice in physics teacher education, there has been no single resource for scholarly work in this area. In response, the PhysTEC project management selected editors and an editorial board for the book based on recommendations from the physics education community. The editorial group worked to devise a set of guidelines regarding submission of manuscripts. This resulting book includes new reports that reflect cutting-edge research and practice, as well as reprints of previously published seminal papers.

The goal in publishing this collection is to help inspire a broadening of the scholarship that PER is already bringing to undergraduate physics to include more work in the area of teacher education. Integrated in this goal is the desire to bring recognition to faculty members who devote a portion of their professional lives to educating teachers, and to understanding how best to improve the teacher education processes that exist in universities today.

The papers included in this book address physics and physical-science teacher preparation, with a focus on physics education research and research-based instruction and curriculum development. The primary audience is physics department chairs and faculty members at physics-degree-granting institutions in the United States. However, the book is also envisioned to be useful for faculty in colleges of education who are engaged in physics teacher preparation. The book has three primary objectives:

- to provide a resource for physics departments and faculty members who wish to develop and/or expand efforts in teacher preparation;
- to encourage scholarly documentation of ongoing research and practice, in a form accessible to a broad audience of physicists; and
- to encourage recognition of teacher preparation as a scholarly endeavor appropriate for faculty in physics departments.

Four New Supported Sites Join PhysTEC Program

The Physics Teacher Education Coalition (PhysTEC) project announced in 2011 that it would provide funding for four universities to assist in the development of their physics teacher education programs. The new sites are Boston University; California State University, San Marcos; State University of New York at Geneseo (SUNY Geneseo); and Virginia Polytechnic Institute and State University (Virginia Tech.

PhysTEC Noyce Program Advances

In Spring 2011, ten future teachers were selected for the third cohort of PhysTEC Noyce Scholars. These students will receive up to $15,000 for the academic year; in return the scholars commit to teaching for two years in a high-need school district after graduation. As they complete their education and start their careers the scholars are mentored by Visiting Master Teachers from local school districts.

Awards and Grants

Awards and Citations

Hans Christian Oersted Medal
2011 Awardee: F. James Rutherford, UC Berkeley

The Particle Enigma, High School Physics, and the Search for Science Literacy

AAPT recognized Rutherford with a Distinguished Service Citation in 1971 for his rich record of achievement on the Panel on the Preparation of Physics Teachers of the Commission on College Physics (CCP), as a member of the joint committee of CCP and AAPT, and for his work as chairman of the NSTA Commission on Professional Standards and Practices.

Rutherford served in two federal agencies, the National Science Foundation and the U.S. Department of Education where he served as assistant secretary with responsibilities for the Office of Education for Research and Improvement, the National Institute of Education, the National Center for Educational Statistics, the Fund for the Improvement of Post-Secondary Education, and the federal programs supporting libraries and the development of educational technologies.

Before retiring Rutherford was as chief education officer of the American Association for the Advancement of Science in Washington, D.C. At AAAS, he started a variety of projects reasserting the role of the AAAS's nationwide science education reform. In retirement, Rutherford, currently a visiting scholar at UC Berkeley, created the website "Science Education Encore."

Established in 1936, the Oersted Medal honors the Danish physicist Hans Christian Oersted (1777-1851). This pretigious award is presented annually to a person who has had outstanding, widespread, and lasting impact on the teaching of physics.

Robert A. Millikan Award
2011 Awardee: Brian Jones, Colorado State University, Fort Collins, CO

All I Really Need to Know About Physics Education I Learned in Kindergarten

Brian Jones was recognized for his work as the developer and director of the Little Shop of Physics. He teaches at Colorado State University, where he also supervises the undergraduate physics laboratories and from which he has received several teaching awards. He has been involved in AAPT for over two decades, serving as a member of the Committee on Laboratories and the Committee on Science Education for the Public and presenting numerous workshops at AAPT national meetings. He is an active member of the Colorado-Wyoming section and served a term as its president. Mr. Jones is co-author of College Physics: A Strategic Approach; and has co-developed hands-on science activity kits on electricity, pressure, energy, and motion.

The heart of the Little Shop of Physics is its hands-on traveling program, which is based at CSU. Each year, the Little Shop crew visits over 40 different schools and makes presentations to approximately 20,000 K-12 students. In addition, the Little Shop of Physics presents teacher workshops, hosts an annual open house, and produces the television show Everyday Science in cooperation with the local Poudre School District. The Little Shop of Physics website features simple physics experiments, interactive experiments, and resources for K-12 teachers and has more than 200 visitors daily.

In describing Jones to the AAPT Awards Committee, former AAPT President Chris Chiaverina said, "His life-long passion for communicating both the content and beauty of physics to diverse audiences is exemplary; his impact on his students, his colleagues, the local, national and international physics teaching community, and the public is extraordinary. Simply stated, Brian Jones is an evangelist for physics."

The Robert A. Millikan Medal, established in 1962, recognizes teachers who have made notable and creative contributions to the teaching of physics. The honoree is asked to make a presentation at the Ceremonial Session of an AAPT Summer Meeting and receives a monetary award, the Millikan Medal, an award certificate, and travel expenses to the meeting.

Paul E. Klopsteg Memorial Award

2011 Awardee: James E. Hansen, NASA Goddard Institute for Space Studies

Halting Man Made Climate Change: The Case for Young People and Nature

Humans are now the dominant force driving climate change. The nature of the climate system— its "inertia" and "tipping points"—makes the matter urgent. Business-as-usual would hand our children a situation out of their control—continually shifting shorelines, as many as half of all species committed to extinction, increasing climate extremes with greater floods, droughts, fires, and stronger storms. Government policies are nearly useless. The intergenerational injustice raises a profound moral issue, as greenwashing governments feign ignorance of the actual situation and the fecklessness of their policies. The tragedy is that a simple honest solution is possible—one that stimulates the economy, phases out fossil fuel addiction, and stabilizes climate—but it requires putting the public's interest above that of special financial interests. Adults must unite with young people in a campaign to force well-oiled coal-fired governments, through legal remedies and democratic processes, to tell the truth and do their job.

Named for Paul E. Klopsteg, a principal founder, a former AAPT President, and a long-time member of AAPT, the Klopsteg Memorial Lecture Award recognizes outstanding communication of the excitement of contemporary physics to the general public.

Richtmyer Memorial Award

2011 Awardee: Kathryn Moler, Stanford University

Quantum Whirlpools: Tiny Vortices of Tireless Electrons

Kathryn Moler is a graduate of Stanford University where she earned both her bachelor's degree and her Ph.D. in Physics (in 1988 and 1995 respectively). She is currently Associate Professor of Applied Physics and Physics, Stanford University, a faculty member of the Geballe Laboratory for Advanced Materials, Deputy Director of the DOE-supported Stanford Institute for Materials and Energy Science, and Director of the Center for Probing the Nanoscale, an NSF NSEC. In her position, Moler fabricates microscopic sensors and uses them to study the magnetic behavior of superconductors. Like most science professors, her time is divided among preparing lectures, writing scientific papers, traveling, and working in the lab.

She has received many prestigious awards, including the Carrington Award for Excellence in Research and Teaching 1988, Stanford Centennial Teaching Assistant 1990, William L. McMillan Award for "outstanding contributions in condensed matter physics" 1999, Presidential Early Career Award for Scientists and Engineers 2000-2005, the National Science Foundation Career Award (1999-2003) and the David and Lucile Packard Foundation Fellowship for Science and Engineering from 2001-2006.

Named for Floyd K. Richtmyer, distinguished physicist, teacher and administrator, and one of the founders of AAPT, the Richtmyer Memorial Lecture Award recognizes those who have made outstanding contributions to physics and their communication to physics educators.

The David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching

2011 Awardee: Edward E. Prather, University of Arizona, Tucson, AZ

Teaching Space Science: A STEM Transformation Vehicle that Really Works

This award recognizes outstanding achievement in teaching undergraduate physics. This award is presented to Edward Prather in recognition of his role as a driving force in the creation of both research-validated curricula and tools for assessment for introductory astronomy and for his conduct of research programs to investigate students' conceptual and reasoning difficulties in astronomy, astrobiology, physics, and planetary science, programs leading to the development of innovative instructional strategies that engage learners and significantly improve their understanding of fundamental Earth and space science concepts. Dr. Prather received a BS degree in Physics and Astronomy from the University of Washington and a PhD in Physics from the University of Maine. He is Associate Professor in the Department

of Astronomy–Steward Observatory at the University of Arizona. In 2004, he was appointed Executive Director of the NSF, NASA, and JPL funded Center for Astronomy Education.

Dr. Prather's primary responsibility is to teach large-enrollment general education introductory college astronomy courses but he has also taught in-person and online graduate courses in astronomy and astronomy education, calculus-based introductory physics courses, and physics courses for non-majors and for pre and in-service teachers. His work in Astronomy Education Research has been published in the *American Journal of Physics,* in *Physics Today*, and in *Astronomy Education Review.* In 2006, his work was recognized with the University of Arizona Provost's General Education Teaching Award and, in 2009, he received the 2009 University of Arizona College of Science Innovation in Teaching Award. Dr. Prather's interactive classroom environment challenges his students to step out of their comfort zones, to take chances on being wrong, and to take charge of their learning.

Established in 1993 and now named for the authors of a very successful college-level textbook on introductory physics and funded since 2010 primarily by a generous endowment from John Wiley and Sons, the publisher of that textbook, the David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching recognizes outstanding achievement in teaching undergraduate physics, which may include the use of innovative teaching methods.

The Paul W. Zitzewitz Award for Excellence in Pre-College Physics Teaching

2011 Awardee: Stacy McCormack, Penn High School, Mishawaka, IN
Blonde Girls Can't Learn Physics

This Award recognizes outstanding achievement in teaching pre-college physics. Diane Riendeau teaches physics at Deerfield High School in Deerfield, IL. One of her philosophies is that high school physics curricula should be concepts driven instead of math driven and hands-on instead of lecture-based. This way students walk away with lived physics experiences. This philosophy is especially applicable to high school freshmen who are still children at heart and enjoy learning by doing and playing.

She received the Innovative High School Teaching Award, 1992, from the AAPT, and the AAAS Leadership in Science Education for High School Teachers, 2008, and was a finalist in the Presidential Award for Excellence in Math and Science Teaching, 2008, Illinois. McCormack is a frequent author for *The Physics Teacher,* a former Editorial Board member for the journal, peer reviewer for *TPT*, and currently a *TPT* column editor for "YouTube Physics."

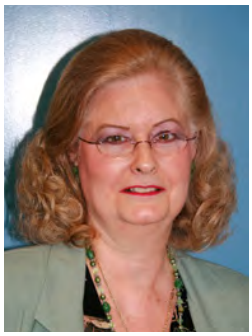
Established in 1993 and funded since 2010 by a generous gift to AAPT from Paul W. and Barbara S. Zitzewitz and named for Paul W. Zitzewitz, the principal author of the highly acclaimed and widely adopted high school physics text *Physics: Principles and Problems* and a long-time member and supporter of AAPT, the Paul W. Zitzewitz Award for Excellence in Pre-College Physics Teaching recognizes outstanding achievement in teaching pre-college physics.

AAPT Distinguished Service Citations

Distinguished Service Citations recognize AAPT members for their exceptional contributions (e.g., committee, section, or editorial work) to physics education.

Winter Meeting 2011

Dwain Desbien, physics faculty at Estrella Mountain Community College, Avondale, AZ, earned his PhD in Physics Education from Arizona State University in 2002, MS in Physics from University of Kansas in 1993 and BA in Physics from Grinnell College in 1990. His work and teaching in physics education is guided by the modeling theory of physics and he is active in running workshops on the modeling method of physics. Dwain is the Co PI on the ATE Project for Physics Faculty (an NFS-funded professional development for high school and two-year college faculty). He has presented many workshops for the PTRAs, high school, two-year college and university groups, both regionally and nationally. He has led a number of workshops at national AAPT meetings. Dwain has served on the Executive Board of the AAPT as the TYC member-at-large and President of the Arizona Section of the AAPT. In addition he has served on the TYC committee and currently is on the Undergraduate Education Committee of the AAPT. He also is currently serving on the *The Physics Teacher* five-year review committee. He has published in and reviewed for *TPT* and also reviewed for other physics journals.



Jane Bray Nelson received a BS in Chemistry from Florida State University and MS in Science Teaching from Memphis State University. She has taught Advanced Placement Chemistry, Advanced Placement Physics, Physical Science, Biology, Geometry, or Anatomy-Physiology. From 1998–2005 Nelson was Teacher-Director of University High School at Research Park, a Science and Technology magnet high school in Orange County, FL. She was inducted into the National Teachers Hall of Fame in 2002.

She has been active in AAPT since 1987, serving as a member of the Physics in High School and Minorities in Physics committees. Additionally, Nelson served as President of the Florida Section of AAPT from 2008–2010, and as Secretary-Treasurer of the Florida Section from 1992–2007. Since 1987 Jane has been a National Physics Teacher Resource Agent. She has led nearly 100 PTRA workshops impacting more than 800 teachers, and has brought $16,414 to the PTRA continuation fund.

Gordon P. Ramsey is a professor of physics at Loyola University Chicago. He received a BA in Physics and Mathematics from Southern Illinois University and MS & PhD degrees in Physics from Illinois Institute of Technology. He is a resident scientist at Argonne National Laboratory, doing theoretical research in high-energy physics. Gordon has been active in the Chicago and Illinois sections and has served on AAPT International and Computers area committees. Gordon has coordinated summer workshops for high school teachers, middle school teachers and high school students. Gordon and Loyola collaborators perform research in physics education and science anxiety. He has mentored many undergraduate research projects. He recently served on the AAPT Executive Board and is currently the AAPT representative to the U.S. Liaison Committee of the International Union of Pure and Applied Physicists. In this capacity he works closely with the International Commission on Physics Education and AAPT to promote communication between physics teachers internationally.

Sam Sampere earned his BS at LeMoyne College and his MS at State University of New York-Binghamton. For the last 16 years, he has been the Demonstration and Laboratory Manager at Syracuse University. He is also an Adjunct Physics Instructor at LeMoyne College and manages the Syracuse University Surface Imaging Laboratory. A member of AAPT since 1995, Sampere has been co-leader or presenter of Lecture Demonstration Workshops (1996-pres.), emcee of numerous AAPT Demonstration Shows, host of the Summer Meeting (2006), and served as an Apparatus Competition judge. He has served as Chair of the Committee on Apparatus (2008-09), as a member of the Committee on Apparatus (2007-08), Nomination Committee (2002-03), Committee on Laboratories (2001-02), and the Bauder Fund Committee (2001). He is also a member of PIRA, which includes a term as President from 2005-06, and vice president of the New York State Section AAPT. Additionally, Sampere is co-organizer of the Syracuse University Saturday Morning High School Physics Teacher Workshops. He was awarded a Physics 2005 Outreach grant.

Summer Meeting 2011

Drew Isola was presented with a 2011 Distinguished Service Citation in recognition of several roles he has played in support of AAPT's mission. He has been a member of the Committee on Teacher Preparation, President of the Michigan Section, and program chair for a number of Michigan section meetings. He is the only high school teacher on the National Task Force on Teacher Education in Physics. He has been actively involved in the PhysTEC Project as the 2005-07 Teacher-in-Residence at Western Michigan University and as part of the Project Leadership Team at the national level. He has served for many years as a consultant and presenter of professional development workshops for science teachers both locally and at the state level through the Michigan Math and Science Centers Network. He also served as a member of the writing team for the current version of Michigan's High School Science Content Expectations and as a coach for several teams that competed in the Michigan Science Olympiad.

Dr. Isola holds a BS degree in Mathematics from Michigan Technological University and MS and PhD degrees in Science Education from the Mallinson Institute for Science Education. Since 1994, he has taught physics and mathematics at Allegan High School in Allegan, MI. He has also taught mathematics and science in middle school level courses for honors, grade-level, and below grade-level students.

Todd Leif was recognized for his service to AAPT as the Arkansas, Oklahoma, Kansas Section Representative, and as a member of the Membership and Benefits, Educational Technologies, Nominating, and Physics in Two-Year Colleges Committees. Earlier in his career he worked with The Physics Enhancement Project for Two Year Colleges and TYC21. He is currently the Co-PI on the AAPT/NSF Grant for Two-Year College New Faculty Experience. After a successful pilot project, the grant team is developing and conducting workshops for new faculty. These workshops bring current physics education research into the classrooms of the most recent physics teaching hires among two-year colleges. Dr. Leif is a well known author and presenter, especially in the Two-Year College Physics Education area and has been published in *The Physics Teacher.*

Dr. Leif holds a BS degree in Physics and Mathematics and an MAT degree in Physics Education from Hastings College, Hastings, NE, and a PhD degree in Science Education from Kansas State University. He is currently Chair of the Department of Physical and Biological Sciences at Cloud County Community College in Concordia, KS. He also serves as an academic advisor and as a head coach for the Academic Excellence program.

John L. Roeder is presented with a 2011 Distinguished Service Citation in recognition of his service to AAPT and the physics education community. Dr. Roeder has served as a Physics Teaching Resource Agent (PTRA) since 1985 and is the author of the PTRA resource book, *Teaching About Energy,* published by AAPT in 2009. He was elected to the Executive Board in 2005 as a Member-at-Large representing the high school community. Over the years, his contributions have benefitted many committees, including Publications, History and Philosophy of Physics, Bauder Endowment, Venture Fund, Lotze Scholarship, Physics in High Schools, Review Board, Audit, Awards, and Science Education for the Public. Additionally, Dr. Roeder has served as Secretary/Treasurer for The Physics Club of New York since 1986. Most recently he volunteered to serve as an AAPT eMentor.

A science teacher at The Calhoun School in New York City since 1973, Dr. Roeder holds an AB degree in Physics from Washington University and MA and PhD degrees in Physics from Princeton University.

R. Steven Turley is presented with a 2011 Distinguished Service Citation in recognition of his service to AAPT in many contexts. Dr. Turley is an active member of the Idaho/Utah Section of AAPT. He served on the Committee on Physics in Undergraduate Education (2003-06), the Committee on Graduate Education in Physics (2007-09), and on the AAPT Nominating Committee (2008-10), chairing that Committee for the 2010 election. Beyond AAPT, he serves science education—and indirectly AAPT's mission—as a member of the Utah Academy of Sciences, Arts and Letters (and as President of that Academy in 2007-2009) and currently is Associate Affiliate Director of the Rocky Mountain Space Grant Consortium and Director of NSF-sponsored Research Experiences for Undergraduates in Physics.

Dr. Turley holds a BS degree from Brigham Young University and a PhD degree from MIT. He is currently a member of the faculty of the Department of Physics and Astronomy at BYU, where he was department chair from 2000-2003 and was Associate Dean of Undergraduate Education from 2003-2008. Prior to 1995, he worked as Senior Research Staff Physicist at Hughes Aircraft Company Research Laboratories.

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Committee Contributions

Committees are essential to AAPT. In addition to committees that advise and oversee operations, such as Publications, Awards, and Budget, there are those that focus on advancing physics education. There are currently 18 Area Committees, each with nine members who hold staggered three-year terms: One new member is appointed each year by the Nominating Committee and two are appointed by the incoming president. Their responsibilities range from developing academic content for the meetings to acting as stewards for their particular area of interest.

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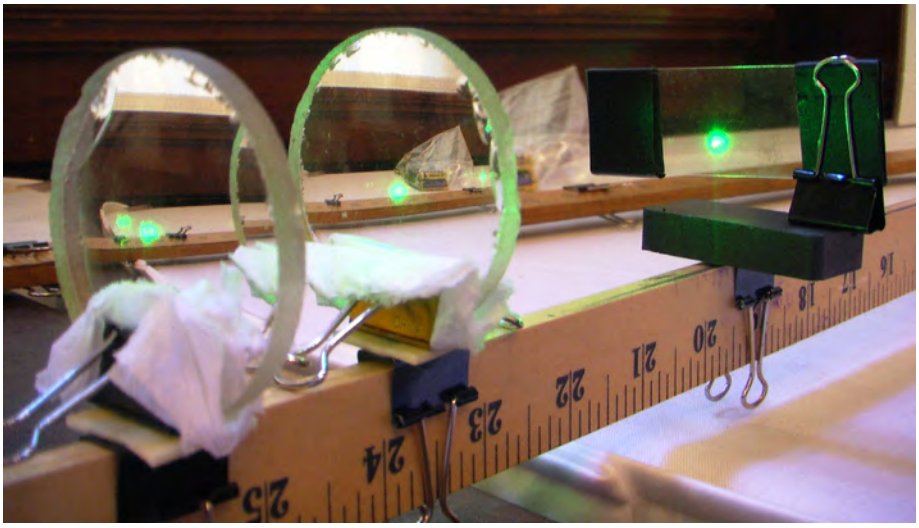

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The American Association of Physics Teachers, Inc.
Balance Sheet
Year Ended December 31, 2011
(With comparative totals for 2010)

	December 2011	December 2010
ASSETS		
Cash and Cash Equivalents	$773,378	$575,451
Investments	2,998,953	3,190,735
Receivables, Net		
Grants	213,991	190,809
Due from affiliate	62,816	54,972
Membership	88,341	58,892
Other	9,655	9,655
Inventory	84,075	78,454
Prepaid Expenses	49,539	59,729
Investment in ACP	221,138	134,626
Property and Equipment, Net	19,447	23,333
TOTAL ASSETS	$4,521,333	$4,376,656
LIABILITIES & NET ASSETS		
LIABILITIES		
Accounts Payable and Accrued Expenses	$244,047	$265,555
Accrued Payroll and Related Liabilities	200,586	287,532
Unearned Revenue	1,867,716	1,903,458
Deferred Compensation Obligation	11,232	16,146
Accrued Postretirement Benefit Obligation	439,214	356,573
TOTAL LIABILITIES	2,762,795	2,829,264
NET ASSETS		
Unrestricted		
Undesignated	837,589	674,064
Board designated	174,062	173,278
	1,011,651	847,342
Temporarily Restricted	260,152	268,365
Permanently Restricted	486,735	431,685
	1,758,538	1,547,392
TOTAL LIABILITIES & NET ASSETS	**$4,521,333**	**$4,376,656**

The American Association of Physics Teachers, Inc.
Statement of Activities
Year Ended December 31, 2011
(With Comparative Totals for 2010)

	Unrestricted					
	Undesignated	Board Designated	Temporary Restricted	Permanently Restricted	2011 Total	2010 Total
Revenue & Support:						
American Journal of Physics	$1,510,015	-	-	-	$1,510,015	$1,482,813
The Physics Teacher	907,989	-	-	-	907,989	869,463
Investment Income (Loss)	17,769	-	1,848	-	19,617	478,915
Other Publications	172,466	-	-	-	172,466	266,254
Meetings, workshops and projects	629,790	-	-	-	629,790	622,195
Membership	795,690	-	-	-	795,690	878,739
Federal Grants	816,344	-	-	-	816,344	651,350
Contributions	93,714	784	-	55,050	149,548	134,880
International Physics Olympiad	96,576	-	-	-	96,576	120,909
Share in earnings of investment in ACP	86,512	-	-	-	86,512	87,139
Miscellaneous Income	632	-	-	-	632	1,099
Net assets released from restrictions	10,061		(10,061)	-	-	-
Total revenue and support	5,137,558	784	(8,213)	55,050	5,185,179	5,593,756
Expenses:						
Program Services:						
American Journal of Physics	768,987	-	-	-	768,987	826,459
The Physics Teacher	624,621	-	-	-	624,621	622,893
Other Publications	628,389	-	-	-	628,389	769,008
Meetings, workshops and projects	1,002,213	-	-	-	1,002,213	1,042,468
Memberships	713,586	-	-	-	713,586	873,960
Federal Grants	898.639	-	-	-	898.639	757,468
Support services:						
General and administrative	303,723	-	-	-	303,723	306,244
Fundraising	33,875	-	-	-	33,875	108,749
Total Expenses	4,974.033	-		-	4,974.033	5,307,248
Change in net Assets	163,525	784	(8,213)	55,050	211,146	286,509
Net Assets:						
Beginning	674,064	173,278	268,365	431,685	1,547,392	1,960,933
Ending	$837,589	$174,062	$260,152	$486,735	1,758,538	$2,247,442

The American Association of Physics Teachers, Inc.
Schedule of Functional Expenses
Year Ended December 31, 2011
(With Comparative Totals for 2010)

	Program Services	General & Administrative	Fundraising	2011 Total	2010 Total
Compensation expense	$ 1,287,115	$ 862,285	$ 21,523	$2,170,923	$2,236,909
Editorial office expense	316,005	-	-	316,005	250,673
Travel	190,952	64,265	48	255,265	324,966
Debt service	-	243,879	-	243,879	245,794
Publication costs	243,673	66	-	243,739	323,013
Participant travel and stipends	208,786	-	-	208,786	185,125
Rental operating expenses	-	173,835	-	173,835	174,713
Computer supplies and maintenance	515	162,288	-	162,803	188,315
Postage, packaging and shipping	144,092	1,174	-	145,266	115,043
Online journal services	145,132	-	-	145,132	158,159
Other	139,540	3,077	-	142,617	21,031
Dues and memberships	92,761	455	-	93,216	58,154
Consultants, contracts and temporary	86,260	-	-	86,260	172,079
Professional fees	2,959	70,201	-	73,160	80,908
Conferences, meetings, and workshops	58,196	10,514	-	68,710	127,832
Exhibit and meeting expenses	56,313	-	-	56,313	65,314
Office services	-	43,850	-	43,850	43,079
Bank fees	30	42,566	-	42,596	61,630
Advertising	39,550	2	-	39,552	38,053
Publishing services	33,492	1	-	33,493	60,658
Honoraria	32,926	-	-	32,926	55,130
Other facility costs	30,530	400	-	30,930	15,492
Photocopying and printing	24,580	6,149	-	30,729	43,879
Audio/visual	25,295	2,227	-	27,522	83,135
Awards	19,753	2,500	-	22,253	49,700
Materials and supplies	16,623	1,836	17	18,476	26,721
Insurance	810	17,164	-	17,974	15,581
Investment expenses	-	16,444	-	16,444	15,875
Equipment and maintenance	4,566	5,277	-	9,843	-
Depreciation	-	8,159	-	8,159	44,797
Storage	5,066	1,081	-	6,147	7,103
Telephone	387	5,206	-	5,593	10,224
Security	1,533	-	-	1,533	2,709
Royalty expense	104	-	-	104	445
Allocation of indirect costs	1,428,891	(1,441,178)	12,287	-	-
Total expenses before allocation of general and administrative expenses	**4,636,435**	**303,723**	**35,875**	**4,974,033**	**5,302,239**
Allocation of general and administrative expenses	**284,465**	**(286,445)**	**1,980**	-	-
Total expenses	$ **4,920,900**	**$17,278**	**$35,855**	**$4,974,033**	**$5,302,239**

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