APS physics

Capitol Hill Quarterly

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Physics Blitzes the Hill

By Kristopher Larsen

Nearly 40 APS members joined a group of about 300 scientists, engineers and educators who informed Congress about the importance of basic research as part of the 15th annual Science-Engineering-Technology Congressional Visits Day (CVD) on April 28 and 29.

CVD is organized by SETWG (Science, Engineering and Technology Working Group) that comprises more than 40 companies and organizations presenting a broad cross section of science and technology institutions in academia, the government and private industry.

Physicists from APS visited a total of 85 House and Senate offices and stressed the critical need to fund the Department of Energy's Office of Science, the National Science Foundation (NSF) and the National Institute of Standards and Technology. The scientific agencies are responsible for carrying out transformational research that has led to innovations such as the MRI, Global Positioning Satellites and the Internet. The APS members also promoted the House passage of America COMPETES Reauthorization Act, the bill that would keep the scientific agencies' budgets on a doubling path and boost funding for math and science programs. The legislation is now awaiting Senate approval.

APS members Pierre Ramond and Alan Dorsey, both professors at the University of Florida, conversed with their congressional Rep. Cliff Stearns (FL-6th) about the impact of NSF funding on the university and his district. Specifically, the physicists pointed out that professors at the university have used the funding to develop instrumentation for the Large Hadron Collider, the world's largest and highest energy particle accelerator located in Switzerland. On a lighter note, Rep. Stearns asked about string theory (which postulates that subatomic particles are one-dimensional strings), and Ramond and Dorsey recommended Brian Greene's book, *The Elegant Universe*.

Photo by Kristopher Larsen/APS

From left to right: Rep. Cliff Stearns (FL-6th), Alan Dorsey and Pierre Ramond, both professors at the University of Florida

In conjunction with CVD, SETWG annually

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APS Applauds U.S. House Reauthorization of 2007 Bipartisan America COMPETES Act

By Tawanda W. Johnson

APS compliments the U.S. House of Representatives on the recent passage of the America COMPETES Act – legislation that boosts funding for the nation's scientific agencies and strengthens math and science programs. Rep. Bart Gordon, of Tennessee, chairman of the House Science and Technology, deserves praise for his vision and tenacity.

The bipartisan legislation keeps the basic research budgets of key science agencies on a 10-year doubling path by reauthorizing programs in the U.S. Department of Energy's Office of Science, the single largest supporter of research in the physical sciences in the U.S.; the National Science Foundation, which supports fundamental research and education in all non-medical fields of science and engineering; and the core programs of the National Institute of Standards and Technology, which conducts research to advance the nation's technology infrastructure in support of American industry.

"The COMPETES Act places an important marker on the value of science to America's future innovation economy," said Michael S. Lubell, APS director of public affairs. "As our nation begins to recover from the deepest recession in more than half a century, it is crucial that we lay the groundwork for job creation and sustained economic growth. Science and technology hold the keys to achieving those goals, and the COMPETES legislation provides the critical impetus."

The bill follows recommendations cited in the highly acclaimed National Academies report, *Rising Above the Gathering Storm*. The report noted that the U.S. is losing economic ground to countries such as China, India and Korea, all of which are successfully applying the U.S. innovation model in their countries. To better compete with those nations, the report proposed measures for an educated and skilled workforce and revitalized research at U.S. universities and national laboratories.

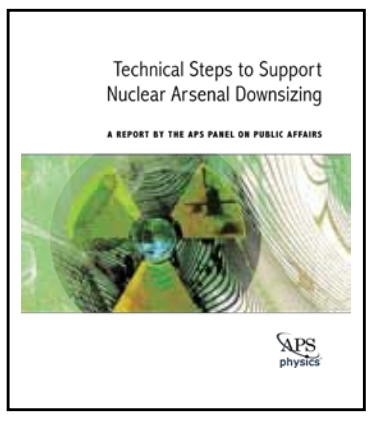
APS Files Petition Requesting Nuclear Regulatory Commission Change Licensing Rules

By Tawanda W. Johnson

APS recently filed a petition with the Nuclear Regulatory Commission (NRC) requesting the agency change its licensing rules by including a review of the proliferation risks associated with smaller, more efficient nuclear fuel technologies.

"Growing international concerns surrounding the secret development of nuclear weapons, including incidents in Iran and Pakistan, have raised the importance of this issue. With its petition, APS wants to limit the possibility that other countries might develop similar programs by having the NRC formally assess the proliferation risks of these technologies," said Francis Slakey, associate director of public affairs for APS.

In its recently released report, *Technical Steps to Support Nuclear Downsizing*, an APS Study Group found that smaller uranium enrichment technologies could represent proliferation game changers, leading to more efficient methods for production and use of nuclear materials that would be harder to detect. The APS petition cites SILEX (Separation of Isotopes by Laser Excitation) as an example of such a technology. It carries significant proliferation risks because of its small size and low energy use.



NRC Chairman Gregory Jaczko, in a recent National Public Radio interview, commented on SILEX: "It's a very new technology, or a novel technology… So, I certainly think there may be some things we need to take a look at and make sure we've got the right approach to ensuring that kind of protection of the technology and the material."

The APS petition also states: "Because the NRC will be considering license applications for [enrichment] technologies that will be smaller, more efficient and harder to detect – thus increasing the risk of proliferation – APS considers it timely to request that the NRC rules be amended to formally require non-proliferation assessments as a step in evaluating licenses."

Carrying out the assessments would be consistent with the NRC's strategic plan to "assure U.S. and international counterparts that proliferation is being appropriately considered and controlled," the petition adds.

The APS Study Group is not the first to conclude that advanced nuclear technologies could pose unique proliferation risks. The International Atomic Energy Agency, which conducts weapons inspections for the United Nations, has established a division to oversee improving detection of smaller technologies. The U.S. National Nuclear Security Agency has also established a research and development program to do the same with an emphasis on laser enrichment.

APS has a long and distinguished history of speaking publicly about issues surrounding both nuclear power and nuclear weapons. Its involvement with such issues is appropriate given the central role physicists play in creating nuclear weapons. They also remain involved in the U.S. nuclear weapons complex and the use and development of nuclear power.

Murray to Serve on Oil Spill Investigative Panel

Former APS president Cherry Murray was recently chosen to serve on the presidentially appointed National Commission tasked with preventing a major oil spill from happening again. The panel will investigate the events leading up to the BP spill and make safety and environmental protection recommendations.

Cherry Murray

Murray, who served as president of APS in 2009, is the dean of Harvard's School of Engineering and Applied Sciences. Other members of the panel include Frances Beinecke, president of the Natural Resources Defense Council; Donald Boesch, president of the University of Maryland Center for Environmental Science; Terry Garcia, executive vice president for Mission Programs for the National Geographic Society; and Frances Ulmer, chancellor of the University of Alaska, Anchorage. The commission is chaired by Bob Graham, former Florida senator; and William Reilly, head of the Environmental Protection Agency.

Capitol Hill Quarterly is a publication of the American Physical Society, www.aps.org. APS is a non-partisan, professional society of physicists with more than 48,000 members.

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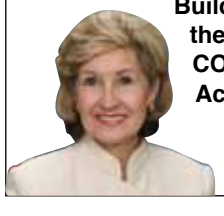
Sen. Hutchison discusses Building Upon the America COMPETES Act



APS Members in the Media

The New York Times

"No practical scenarios of an attack on the real power grid can be derived from such work."

Reka Albert **(PA-5th)**, *Penn State, on an article in a Chinese science journal about the vulnerability of the U.S. power grid,* The New York Times*, March 20, 2010.*

The Los Angeles Times

"This is the end of the beginning…The real fun now will be making the physics measurements."

Robert Cousins **(CA-30th)**, *UCLA, on the LHC's record setting 7 TeV collisions,* The Los Angeles Times*, March 30, 2010.*

The New York Times

"I think they have an excellent convincing case for the first observation of element 117."

Walter D. Loveland **(OR-5th)**, *Oregon State University,* The New York Times*, April 6, 2010.*

The New York Times

"Science is more and more living in a glass house."

Robbert Dijkgraaf **(Amsterdam, The Netherlands)**, *University of Amsterdam, on how the Web makes scientific data easily accessible,* The New York Times*, June 14, 2010.*

The Atlantic

"Very high-energy gamma rays can penetrate several inches of steel."

Steven Chu **(CA-9th)**, *Department of Energy, on using gamma rays to image the damaged oil well in the Gulf of Mexico,* The Atlantic*, May 13, 2010.*

The Wall Street Journal

"It is an unproven field…We are right at the edge now where optimism turns into realism."

Thomas J. Weiler **(TN-5th)**, *Vanderbilt University on Ice Cube, the neutrino detector array located in Antarctica,* The Wall Street Journal*, June 1, 2010.*

The New York Times

"Far from being a dumb blonde, Penny has demonstrated time and again that she possesses above average intelligence and practical knowledge that often far exceeds that of the guys."

David Saltzberg **(CA-30th)**, *University of California Los Angeles, on one of the characters in NBC's "The Big Bang Theory,"* The New York Times*, April 26, 2010.*

San Franscisco Chronicle

"The sensitivity of the light source can tell us so much about the chemical composition of whatever we shine it on that we're really excited about the future of what we can do."

Uwe Bergmann **(CA-14th)**, *SLAC National Accelerator Laboratory, on using high energy X-rays to image a fossilized Archaeopteryx,* San Francisco Chronicle*, May 11, 2010.*

Snapshots from Physics History

July 1849: Fizeau publishes results of speed of light experiment

The speed of light is one of the most well-established values in physics, measured so accurately that the meter is now defined in terms of it. But before the 17th century, most scientists, including such giants as Johannes Kepler and Rene Descartes, considered the speed of light to be infinite, able to travel any distance instantaneously. Galileo Galilei was among the first to question this assumption and attempt to measure the speed of light experimentally.

By modern standards, Galileo's methods were extremely crude. He stationed himself on one hilltop, and an assistant on a distant hilltop, each armed with a lamp that could be covered and uncovered at will. Galileo would uncover his lamp, and his assistant would do the same as soon as he observed the light from Galileo's lamp. Knowing the distance between the two lamps, Galileo could measure how much time had elapsed between the two flashes to calculate the speed of light. Not surprisingly, his conclusion was rather vague and inconclusive: "If not instantaneous, it is extraordinarily rapid." But he did conclude that light travels at least 10 times faster than sound.


Armand Fizeau (1819-1896)

The first serious measurement of the speed of light occurred in 1676, when the Danish astronomer Ole Roemer observed the moons of Jupiter and noticed that their eclipses seemed to occur at different times, depending on the relative positions of Jupiter with respect to Earth, being late when Earth was far away, and early when Earth was closer to Jupiter. He correctly deduced that this effect wasn't due to an actual shift in the moon's orbits, but resulted because the light from those moons traveled a greater distance when Earth was farther away. He knew the accepted value for the diameter of Earth's orbit at that time, and from that, he concluded that the speed of light was 240,000 kilometers per second.

Roemer's measurement was still wide of the actual value, but it provided a useful baseline for future experiments. In 1728, an English physicist named James Bradley added his own findings to the accumulating body of knowledge, using stellar aberration to calculate the speed of light in a vacuum: in his case, 301,000 kilometers per second. The measurements were getting better. However, it would be another 100 years before a French scientist named Armand-Hippolyte-Louis Fizeau figured out how to measure the speed of light by means of a terrestrial experiment.

Born in Paris in 1819, Fizeau was the son of a physicist and professor of medicine, who left Fizeau a considerable fortune when he died. Free to pursue his interests without worrying about making a living, Fizeau focused on scientific research, initially intending to be a physician like his father, but ultimately choosing to study astronomy with Francois Arago at the Paris Observatory, where he no doubt learned of prior attempts to measure the speed of light using astronomical phenomena.

His scientific interests were quite varied, however. For instance, in 1839, he developed a fascination with Daguerrotype photography–then quite new–and teamed up with fellow French scientist Jean-Bernard-Leon Foucault in adapting the process to astronomy. It took 10 years, but the two men eventually took the first detailed photographs of the surface of the sun in 1845.

His work with Foucault inspired Fizeau to attempt his own measurement of the speed of light. He built an apparatus in which a cogwheel and a mirror were placed 8 kilometers apart and then sent pulses of light between them. He would rotate the cogwheel and observe how fast the beam of light traveled between the cogs of the wheel and the distant mirror, observing that if he spun the wheel very fast, the reflection back from the mirror was obscured because the light had struck one of the cogs.

Fizeau suggested that the amount of time it took the wheel to move the width of a single cog was equivalent to how long it took for the light beam to travel to the mirror and back again. Since he knew how fast the cogwheel was rotating, and the width of a single cog, as well as the distance to the mirror, Fizeau was able to calculate the speed of light, obtaining the value 313,300 kilometers per second. This was still roughly 5 percent too high.

Foucault improved on Fizeau's apparatus slightly, replacing the cogwheel with a rotating mirror–hence, it is now known as the Fizeau-Foucault Apparatus. Light was reflected at different angles as the mirror rotated. Since both the speed of rotation and the distance to the mirror were well established, it was possible to measure the difference between the angle of the light as it entered the apparatus and when it exited the setup, and calculate the speed of light from that. Foucault concluded in 1862 that the speed of light was 299,796 kilometers per second.

Fizeau's contributions to science are not limited to this speed-of-light measurement. Subsequent experiments in which he measured how light traveled through flowing liquid resulted in a surprising discovery: the velocity of light doesn't change as expected when the medium it is passing through is in motion. Scientists had already determined that light traveled at varying speeds through different mediums, but until Fizeau's experiments, they believed that if a medium was moving, the speed of light would be obtained by simply adding the velocity of the medium to that of the light. His results implied a different formula, which would later be explained by Albert Einstein as the latter was developing his theory of special relativity.

Subsequent methods to measure the speed of light, of which Albert Michelson was a prominent practitioner, relied on wave interference. These methods became increasingly accurate with the advent of laser technology, and today, more than 350 years after Galileo's hilltop experiment, the speed of light's value is defined to be 299,792.458 kilometers per second, according to a 1983 declaration by the 17th General Congress on Weights and Measures, thereby rendering the meter a derived quantity. It only took some 163 separate experiments involving more than 100 scientists–a testament to the collaborative nature of the scientific enterprise.

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Photo by Beebe Kelzie/congressional staffer

From left to right: Pupa Gilbert (University of Wisconsin), Rep. Tammy Baldwin (WI-2nd)

awards the George E. Brown Jr. Science, Engineering and Technology Leadership Award to congressional members for their leadership in ensuring that the United States meets global competitiveness challenges of the 21st century.

This year, Reps. David Wu (OR-1st) and Ralph Hall (TX-4th) were honored with the award. Other festivities highlighting the CVD included displays by APS and the Optical Society of America commemorating the 50th anniversary of the development of the laser.

Photo by Kristopher Larsen/APS

From left to right: Megan Comins, Andrew Rappe and Rep. Jim Gerlach (PA-6th)

APS Urges Greater Federal Investment in Energy Efficiency R&D as Oil Spill Grips Nation

By Tawanda W. Johnson

APS is pressing congressional leaders to increase research investments for future energy technologies that will strengthen energy security and reduce the likelihood of disastrous effects associated with fossil fuel exploration as evidenced by the BP oil spill.

The Gulf oil spill–the worst in the history of the nation–has caused extraordinary environmental and economic damage to the communities along the Gulf Coast. Out-of-work fishermen are wondering how they will provide for their families; oil-drenched birds are struggling to live; and globs of oil are washing ashore on area beaches causing tourists to look elsewhere for vacation.

Current technologies exist to begin the job of achieving true security. But to dramatically reduce the nation's reliance on foreign oil and domestic drilling and to meet the nation's 2030 target to substantially reduce greenhouse gases, APS argues, advanced technologies are needed. And that means a greater investment in long-term research.

The U.S. House cap-and-trade (Waxman-Markey) bill shortchanged that kind of research. APS urges the Senate to remedy the omission by including in the bill the president's Clean Energy Technology Fund, an investment of $15 billion per year over 10 years to develop affordable, low-emission energy technologies.

Energy efficiency, an APS Study Panel concluded, is the easiest and least inexpensive way to significantly reduce the nation's demand for imported and domestic oil and its greenhouse gas emissions without causing any loss of comfort or convenience.

"Energy efficiency reduces demand, and energy we do not use costs nothing, emits nothing and does not pollute the Gulf," said Nobel Laureate Burton Richter, who chaired the APS energy efficiency study and authored the newly released book, *Beyond Smoke and Mirrors: Climate Change and Energy in the 21st Century.*

Numerous technologies already exist to increase the efficiency of U.S. vehicles and buildings that will save consumers money. But, as the panel's report, *Energy Future: Think Efficiency* noted, realizing future gains, as with other energy technologies, will require a larger and better focused federal research and development program on energy efficiency than exists today.

The APS report also noted that consumers often are not provided with information that allows them to make informed decisions on energy consumption. The cap-and-trade legislation should include a provision to help consumers save money by requiring energy audits at the point of sale for new homes. The audits would give home buyers valuable information regarding energy efficiency upgrades to lower their utility costs.

Two APS–Sponsored Fellows Bring Science to Capitol Hill

Scientists and lawmakers have an opportunity to learn from each other in the AAAS (American Association for the Advancement of Science) Science and Technology Policy Fellowship program, which provides researchers with one-year positions working in the U.S. government.

The purpose: to enable lawmakers to consult with scientists about technical issues while drafting public policy and to provide scientists with experience shaping federal policy. The ultimate aim is to promote positive contact between lawmakers and scientists. APS annually sponsors one or two scientists in the program.

Working Energy Issues

This year, APS is sponsoring Virginia Corless, who is working on the Senate Energy & Natural Resources Committee, and Arti Garg, who is working on the House Foreign Affairs Subcommittee on Terrorism, Nonproliferation, and Trade.

Corless received her undergraduate degree in physics at MIT and earned a Ph.D. in astrophysics at Cambridge in 2009. She spent the next year doing postdoctoral work in Munich at Ludwig-Maximilians-Universität, researching the gravitational lensing effects of irregularly shaped intergalactic objects.

At MIT, she minored in applied international studies and took several political science and theater classes. While at Cambridge, she directed a reinterpreted production of the 10th-century miracle play Dulcitius.

Corless sought to combine her background in physics with other fields and travel. During the summer of 2002, she taught biology to students in China through MIT's China Educational Technology Initiative. In the summer of 2004, she won a fellowship from the MIT International Science & Technology Initiatives program to study globular clusters at the Osservatorio Astronomico di Roma in Italy.

While working on her Ph.D., she spent a month in Washington D.C. in an internship at the Science and Technology Policy Institute under the Institute for Defense Analyses.

Virginia Corless

Arti Garg

"Science policy is a place where so many things intersect," she said.

On the Energy & Natural Resource Committee, Corless has been tasked with a range of energy policy issues, including energy technology. In carrying out her duties, she works with the Department of Energy, United States Agency for International Development and the Commerce Department.

After the fellowship ends in August, Corless said that she hopes to continue working on international energy issues. She said ultimately she hopes to help spread the next generation of energy technology to the developing world.

Fusing Science and Policy

Arti Garg said that her fellowship on the House Foreign Affairs Subcommittee on Terrorism, Nonproliferation, & Trade has given her the chance to offer more scientific input into internationally focused legislation.

Garg received her bachelor's of science degree in physics along with a bachelor's of arts in English from Stanford University. She also earned a master's in aeronautical and astronautical engineering at Stanford before attending the University of Washington, where she earned a second master's (this time in physics). She obtained a Ph.D. in physics from Harvard in 2008.

After defending her thesis, Garg did postdoctoral work at Lawrence Livermore National Laboratory. She also worked at the Institute for Geophysics and Planetary Physics, and the Center for Global Security Research, where she worked on developing a remote surveillance system.

For the congressional fellowship, Garg works as a science legislative assistant, and her duties include preparing background material, setting up hearings, organizing briefings and working on legislation.

"I felt that there were a lot of policy-related issues that have a lot of technological underpinnings," she said about why she first applied for the program. "There's a lot of stuff that happens in Washington, and a lot of it affects science."

She learned about the Congressional Science Fellowship while working as a science policy fellow at the National Academies. Before beginning her assignment with the National Academies, Garg didn't have much of a background in public policy. She had only taken one U.S. political science course as an undergraduate. Later, she took a course taught by Presidential Science Adviser John Holdren at Harvard's Kennedy School of Government.

Her research in astrophysics took her to the Cerro Tololo Inter-American Observatory and Las Campanas Observatory in Chile, where she learned how international policies affected people's lives, including how the observatories are run; who are issued visas to work; and how Chile used telescopes to strengthen its research base.

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Building Upon the America COMPETES Act

By Senator Kay Bailey Hutchison

Science and technology are at the core of America's ability to compete in an increasingly globalized economy, as well as to solve 21st century challenges like energy independence, biotechnology, communications, and healthcare.

With the U.S. economy still in recovery, the issue of America's long-term competitiveness is more critical than ever. We must ensure we have sustained economic growth and a strong supply of private sector jobs to employ the next generation of American workers.

According to the National Science Board's Science and Engineering Indicators 2010 report, U.S. leadership in research and development (R&D) and technological innovation is declining. If this trend continues, we risk forfeiting our global leadership in technological development to other nations.

In order to compete, the U.S. must not only train the best scientists and engineers in the world, but emphasize math and science in American education so our students are qualified for the high-paying, high-tech jobs of the 21st century. I have been a vocal proponent of encouraging young students to pursue careers in science, technology, engineering, and math (STEM). However, the rates of American students going into STEM fields still remains alarmingly low.

"In order to compete, the U.S. must not only train the best scientists and engineers in the world, but emphasize math and science in American education so our students are qualified for the high-paying, high-tech jobs of the 21st century. I have been a vocal proponent of encouraging young students to pursue careers in science, technology, engineering, and math (STEM)."

In my home state of Texas, only 41 percent of the high school graduates are ready for college-level math (algebra), and only 24 percent are ready for college-level science (biology). Furthermore, only 2 percent of all U.S. ninth grade boys and 1 percent of girls will attain even an undergraduate science or engineering degree. In contrast to these troubling numbers, 42 percent of all college undergraduates in China earn science or engineering degrees. In 2000, nearly 80 percent of the 114,000 science and engineering doctorates awarded worldwide were from institutions outside the United States. This situation has only worsened in the last decade.

Despite these troubling statistics, we can and must make America even more competitive and innovative than it is today. To grow high-paying, highly skilled American jobs, we must increase investment in research by lowering the corporate tax rate, including a permanent extension of the R&D tax credit. We need to encourage student interest in careers in math, science, and technology. And, we must foster an atmosphere of private-public partnerships between our educational institutions and those companies that need STEM graduates.

We must also build a solid foundation for a scientifically literate workforce, which begins with developing outstanding K-12 teachers in science and mathematics. Unfortunately, today there is such a shortage of highly qualified K-12

teachers that many of the nation's school districts have been forced to hire uncertified or under-qualified teachers in these subjects.

Statistics demonstrate that a large percentage of middle and high school mathematics and science teachers are teaching outside their own primary fields of study. While a U.S. high school student has a 70 percent likelihood of being taught English by a teacher with a degree in English, that high school student has only about a 40 percent chance of studying chemistry with a teacher who was a chemistry major.

Those statistics are unnecessary and unacceptable. We can and must do better to encourage programs that increase the number of teachers in STEM fields who are certified to teach in those areas.

I am pleased that the University of Texas has been a leader in this area and has a model program that combats this problem by offering a combination of an undergraduate degree in a STEM field with teacher certification through electives. Beginning in 1997, the University of Texas' UTeach program has produced more high school teachers with degrees in STEM fields and become the national benchmark for teaching excellence. It was recommended in the National Academies' *Rising above the Gathering Storm* report.

Soon I will introduce legislation that will create a national program to encourage colleges and universities to adopt the UTeach program to recruit and prepare science, technology, engineering, and mathematics majors to become certified as elementary and secondary school teachers.

Three years ago, Congress passed the America COMPETES Act. The legislation focused on improving the academic opportunities available to young Americans, including significant efforts to attract and train teachers qualified to teach courses in science and math and expanding the availability of Advanced Placement (AP) courses. Today, the America COMPETES Act is up for reauthorization, and we must continue to build upon the progress started in the original law.

"I am pleased that the University of Texas has been a leader in this area and has a model program that combats this problem by offering a combination of an undergraduate degree in a STEM field with teacher certification through electives…Three years ago, Congress passed the America COMPETES Act. The legislation focused on improving the academic opportunities available to young Americans, including significant efforts to attract and train teachers qualified to teach courses in science and math and expanding the availability of Advanced Placement (AP) courses. Today, the America COMPETES Act is up for reauthorization, and we must continue to build upon the progress started in the original law."

"To grow high paying, highly skilled American jobs, we must increase investment in research by lowering the corporate tax rate, including a permanent extension of the R&D tax credit. We need to encourage student interest in careers in math, science, and technology. And, we must foster an atmosphere of private-public partnerships between our educational institutions and those companies that need STEM graduates."

The challenge of educating a 21st century workforce can be daunting, but we should consider it an opportunity to strengthen America as a global leader of innovation. I remain committed to opening the doors of higher education to all Americans and keeping our country competitive in the global marketplace.

Senator Kay Bailey Hutchison is a Republican who was elected in 1993 as the first woman to serve Texas in the U.S. Senate. She is the senior Republican on the Senate Committee on Commerce, Science, and Transportation. Additionally, she serves on the Appropriations Committee, the Committee on Banking, Housing, and Urban Affairs, and the Committee on Rules and Administration. In the 110th Congress, Sen. Hutchison served as the chairman of the Republican Policy Committee. Sen. Hutchison is a member of the Republican National Hispanic Assembly (RNHA) National Advisory Committee and is chairman of the West Point Board of Visitors.