April Meeting Heads for Denver in May

The 2009 APS April Meeting will be held May 2-5 in Denver, Colorado. This year’s April Meet- ing will center on the theme “New Eyes on the Universe: 400 Years of Telescopes.”

Addressing this theme, Richard Ellis of Caltech will give a keynote address titled “The Quest for Giant Telescopes: Four Centuries of Chal- lenging and Scientific Discovery.”

The scientific program, which focuses on astrophysics, particle physics, nuclear physics, and related fields, will consist of three plenary sessions, approximately 75 invited sessions, more than 100 contributed sessions, and poster sessions. The meeting will be co-located with the Sherwood Fusion Theory Confer- ence.

APS units represented at the meeting include the Divisions of Astrophysics, Nuclear Physics, Particles and Fields, Physics of Beams, Plasma Physics, and Computational Physics; the Forums on Education, Physics and Society, International Affairs, History of Physics, and Graduate Student Affairs; and the Topical Groups on Few-Body Systems, Precision Measurement and Fundamental Constants, Gravitation, Plasma Astrophysics, and Hadronic Physics.

In addition to the regular pro- gram, there will be several special events, including a professional development workshop for women physicists, a high school teachers’ day, a students’ lunch with the ex- perts, and the presentation of APS prizes and awards in a special cer- emonial session. A special sym- posium on the APS energy efficiency report will be held May 2.

A town hall meeting on the DOE/NASA Joint Dark Energy Mission (JDEM) will be held on Saturday, May 2. A town hall meet- ing on the NRC’s Astronomy & As- trophysics Decadal Survey will be held on Monday, May 4.

For further details of the program and registration information visit: http://www.aps.org/meetings/april/

The abstract submission deadline is January 9. The Early Bird registra- tion deadline is February 27.

Physics Degrees Retain Value in Weak Economy

With the economy in a severe recession, states are cutting funds from public colleges and universi- ties, and private universities have lost numerous donors who have cut their endow- ments. Many colleges and univer- sities have reported implementing or considering measures such as hiring freezes, salary freezes, fur- loughs, and other cuts to sav- e money. In addition, many national labs are under funding pressures, and industries are under duress. Given this challenging job market, physi- cists may be faced with a difficult situation. But in the long run, people with degrees in physics tend to fare relatively well, and APS will do what it can to help.

“One indicator that APS is to serve the community,” said 2008 APS President Arthur Bienenstock. “We will be looking for ways to help physicists through any difficult times ahead and welcome suggestions on how we can be of service. I think over the long haul people who have analytic skills and a creative background will be much more in demand than most college graduates. Many career fields are open to those with training in physics.”

“My basic view of the job market for physicists is that it is always very strong, but it also is well hidden,” said Mark Sincell, Chair of the APS Committee on Careers and Professional Development. Many people with physics degrees will find work in areas not traditionally associated with physics. Recent graduates may need to be patient, and consider a wider range of positions in their job search.

While data are not yet available on the rates of unemployment for physicists or other scientists for this year, the job market for PhD physicists has in fact being looked down at several years, according to Roman Czajko, Director of the Statistical Research Center of the American Institute of Physics.

One indicator, according to Czajko, is in the fraction of new PhDs who take postdoctoral positions. This fraction has been increasing in recent years, reaching about 60% for the classes of 2005 and 2006. The proportion of new PhDs taking postdocs also increased sharply during the mid-1980s, preceding a major recession. While some postdocs indicate that they took the position to advance their career, many accepted a postdoc position because they could not obtain a suitable potentially permanent position. However, physics PhDs typically have very low rates of unemployment, lower than for PhDs in other fields. In general, those with PhDs in any field have lower rates of unemployment than those with less education. Nonetheless, those who graduate during a bad economy do struggle. “In general we are expecting a lot of new degree

Physicists Chosen to be Secretary of Energy

Steven Chu, Director of Lawrence Berkeley National Labora- tory, has been chosen by Presi- dent-elect Barack Obama to be nominated the next US Secretary of Energy.

Chu, an APS Fellow, received the APS Arthur L. Schawlow Prize in Laser Science in 1994 and the APS Herbert P. Broida Prize in 1987. He received the Nobel Prize in 1997 for his work on laser cool- ing and trapping of atoms.

“Steve Chu’s scientific accomplishments make him an outstand- ing selection for US Energy Secre- tary. As the Obama administration develops its energy policy, he will undoubtedly serve as an effective leader, striving to strengthen US energy security and tackle the dev- astating effects of global warm- ing,” said APS Past-President Ar- thur Bienenstock.

Chu has been a strong support- er of renewable energy and an ad- vocate of controls on greenhouse gas emissions to combat global warming. As director of Berkeley Lab, he increased the lab’s fo- cus on research into clean energy technology, including advanced biofuels and solar energy technol- ogy. Chu has also been a leading organizer of the Joint BioEnergy Institute, one of three Bioenergy Research Centers funded by the U.S. Department of Energy, and the Energy Biosciences Institute, a $500 million pact among BP, the University of California, Berkeley, Berkeley Lab, and the University of Illinois.

Chu received his PhD in 1976 from the University of California, Berkeley. He worked at Bell Labs from 1978 to 1987, then became a professor in the physics depart- ment at Stanford University. He served as chair of that department from 1990-1993 and 1999-2001. He became director of Berkeley Lab in 2004.

Seven Thousand and Counting

A record number of 7,156 abstracts were submitted to this year’s March Meeting. In December, a heroic band of about 130 physicists met at APS headquarters in College Park, MD to sort them all into appropriate sessions. In the top photo, Barry Wells of the University of Connecticut (center) makes a point to Karrin Rabe of Rutgers (left) and Jaime Fer- nandez-Baca of Oak Ridge. In the bottom photo, March Program Com- mittee Chair Allan Goldman of the University of Minnesota (left) consults with DCMP program representative David Priea of New York University (center) and Mark Silles of NIST.

Nominations are Key to Increasing Number of APS Women Fellows

By Nadia Ramlagan

In February of 1900, Jeannie Evans and Jessie I. Spofford were elected as APS Fellows—the earli- est recorded names of female Fel- lows from APS archives. The So- ciety itself had been founded less than a year before.

Since then, according to the APS Committee on the Status of Women in Physics, over 300 wom- en have become APS Fellows. Al- though it is increasing, the number of women receiving Fellowship yearly remains relatively small. For example, in 1997 and 1998, there were 10 and 13 new women Fellows, respectively; in 2001 and 2002 there were 13 and 26, and in 2006 and 2007 there were 15 and 25. Of the two hundred and twen- ty five 2008 Fellows approved by the APS Council at its November meeting, 18 are women.

Only half of 1 percent of rough- ly 47,000 APS members can be elected to Fellowship yearly. As it currently stands, 94% of Fel- lows are male and 5% are female, with the remaining 1% providing no gender information, according to the APS membership database. Given that women constitute ap- proximately 11% of total APS membership, there is a definite need and opportunity for improve- ment.

The Fellowship election pro- cess begins with a nomination by one’s peers; there is no way to be elected if one is not nominated. Every individual nomination needs a sponsor and a co-sponsor, each of whom must be APS members. Nominations are evaluated by the Fellowship Committee of the rel- evant Division, Topical Group or Forum, and after review by the APS Fellowship Committee, those who have been recommended are elected by full APS Council.

“Women who are nominated to their unit have a very good chance of being selected for inclusion on the list of proposed new Fellows: the bottleneck is the nomination

DEGREES continued on page 2
“Every extraterrestrial planet detectable so far has been a wobble on a graph. These are the first pictures of an entire system.”

Bruce Macintosh, Lawrence Livermore National Laboratory

DEGREES continued from page 1

I think it does the opposite.” In it doesn’t limit your possibilities. that having a physics degree can said. “My experience has been notes that it is always challenging (Image 29x1100 to 314x1152)

“The changing the perfect dim- plement pattern.”

Kyle Squires, Arizona State University, on how the dimples on a golf ball affect the distance it travels. The Toronto Star, Novem- ber 25, 2008

“We’re here, so that means life can exist.”

Sean Carroll, Caltech, Pasadena- na on the possibility of extraterrestrial life. November 8, 2008

“We’ve shown that the sorting out of the different odors before they even get to the receptors is also important.”

Bruce Cohen, Penn State Uni- versity, on his study showing that dogs’ wet noses help their sense of smell. The Daily Mail (UK), No- vember 27, 2008

“You get a high pressure from that initial blast wave hitting any unprotected surface, and then you get focusing under the helmet as the blast wave penetrates the helmet.”

David Mott, Naval Research Laboratory, on the first helmets exposed to explosions, San Antonio News, November 26, 2008

“It’s not bad until a storm moves in. You put your hand out ‘til you can’t see it. Then you go out and start shoveling snow.”


“By 2015, there will be more optical links in one high-perfor- mance data center than in all tele- communications links worldwide.”

Yurii Vlasov, IBM, predicting the growth of photons. Forbes, December 8, 2008

“It is not now cost-efficient, al- though the materials are cheap be- cause it’s plastic.”

Alan Aspen-Guzik, Harvard University, on plastic solar cells. Reuters, December 8, 2008

“Let us all do our part to make sure that it never happens again, not just in India, but everywhere.”

Mohan Bhargava, University of Maryland, at a vigil for the victims on the first anniversary of 26/11 attacks in India. The Prince Georges County (MD) Sen- tinel, December 9, 2008

This Month in Physics History

January 1998: The accelerating expansion of the universe

In the mid-1990s, two competing teams began observing supernovas with the goal of pinning down the rate at which the expansion of the universe is slowing down. Much to everyone’s sur- prise, they found just the opposite: the expansion was not slowing down, but speeding up, driven by a previously unknown force. In early 1998, the researchers announced these strange results that shook up the field of astrophysics.

In 1917, as he was developing his theory of general relativity, Einstein added an arbitrary con- stant term to his equations in order to keep the universe static and unchanging, as it was then be- lieved to be. Without this term, an initially static universe would have had to expand. Einstein called it, “This is incredible.”

After Hubble’s discovery, for the next few decades scientists be- lieved that there was no cosmological con- stant. It was assumed that matter dominated the universe and it would eventually cause the expansion to slow down. Depending on just how much matter was in the universe, it might eventu- ally collapse in a big crunch, or go on expanding forever, but more and more slowly.

Research focused on determining the his- tory of the expansion of the universe by looking at extremely distant objects. Comparing the redhift of these objects with their distance gives a mea- sure of how fast the universe is expanding.

But getting accurate distances to faraway ob- jects is difficult. One way to do this is to find so-called standard candles, objects whose intrinsic brightness is known and can be compared with their apparent brightness to give a measure of their distance from us. Type Ia supernovas are just such standard candles, objects when a white dwarf star that is part of a binary system attracts some extra mass from its companion star. When the white dwarf reaches a particular mass (about 1.4 times the mass of the Sun) it starts to explode. These superno- vas are extremely bright, visible billions of light years away. Since all type Ia supernovas explode when they reach the same mass, they give good standard candles. By the mid-1980s automated searches had begun to find these rare events.

In the late 1980s, a team called the Superno- va Cosmology Project, led by Saul Perlmutter at Lawrence Berkeley National Laboratory, began to search for type Ia supernovas. Starting in the mid-1990s, a second team, the High-Z Supernova Search, led by Brian Schommer and the Australian Astronomical Society, the Supernova Cosmology Project team announced that they had analyzed 40 supernovas and found that the universe’s expansion is actually speeding up, not slowing down.

In January 1998, at a press conference held dur- ing the Washington, DC meeting of the American Physical Society, the Supernova Cosmology Project team announced that they had analyzed 40 supernovas and found that the universe’s expansion would continue forever, and that the data could be explained by a cosmological constant.

After that press conference, one reporter picked up on the acceler- eration signs of accelerating expansion and a mysterious force pushing the universe apart ever faster, still called dark energy. That was reported that would be no big crunch.

In February, the High-Z team presented their supernova data at a conference, also showing that the expansion of the universe is accelerating. Now it was clear that some strange, unseen antigravity force was driving the universe apart. Both teams soon published papers in refereed journals. These findings were completely contrary to everyone’s expecta- tions, but with the two competing teams finding the same shocking result, they had to be taken se- riously.

Last year cosmologist Michael Turner coined the term “dark energy” to describe the mysterious force, in analogy with the invisible dark matter that makes up most of the matter in the universe.

Science magazine called the accelerating uni- verse the “Breakthrough of the Year” in December 1998.

Now, more than ten years after the discovery, further results have confirmed that the expansion of the universe is accelerating, but the bizarre dark energy remains a mystery.

One candidate for dark energy is a cosmologi- cal constant, as first predicted (though with a different value). Quantum theory predicts that vacuum fluctuations, virtual particles that flit into and out of existence, provide energy to empty space. Unfortunately, the energy density associ- ated with these vacuum fluctuations is, to theoretical calculations, a whopping 120 orders of magnitude greater than the energy density cosmol- ogists measure. Other suggestions for the dark energy have been made, and further studies are underway, but for the moment, physicists remain in the dark.

APS NEWS
Focus on APS Topical Groups:  Quantum Information

By Nadia Ramaglia

In just a few short years, the APS Topical Group on Quantum Information has burgeoned into an influential voice for researchers across a wide range of fields, while maintaining its dedication to continued discussion and vitality of science, the foundations of government.

The field has diversified itself so much that across the wide table of what the GQI represents is a variety of contributions from applied math, engineering, and computer science—fields that do not see APS as their primary home.

"What is clear is that the field is still booming and so whenever you think one interesting aspect is that we are seeing more and more cross-disciplinary with different disciplines; and so you can be disjoined like quantum gravity or condensed matter or statistical physics aspects like quantum chaos and randomness are now sharing interesting ideas. It speaks to the cross-disciplinary nature of our field," said Past Chair Lorenzo Viola.

Yet the umbrella of the GQI will always provide a welcoming home for these speculative discussions in the foundations of quantum theory, Chair-elect David DiVincenzo said: "From the philosophical implications of quantum mechanics to what we do by wave function collapse? And, is there a dualistic viewpoint?"

The GQI has contributed to the topic at the 2009 March Meeting. "The American Physical Society recognizes that its members elected to public office, including school board members, mayors and legislators—have made significant contributions, not only on specific scientific issues but also by bringing their analytical and problem-solving abilities into the arena of public service. Additionally, many have found that civic engagement has contributed to their professional development through exposure to the broader implications of their work."

The American Physical Society recognizes that its members elected to public office or who hold key scientific and technical positions within government effectively serve both the public community and the broader society. We strongly support the decision of the members of the scientific and engineering communities to pursue such positions.
Goal Must Be Nuclear-Free World

In response to “Public Affairs Report Examines Nuclear Weap-
on Policy” (APS News, November 2008), the report appears to stress how to reinforce the US Nuclear Arsenal and how to induce other nations to reduce their Nuclear Ar-
senal. A biased approach can reinforce the US Nuclear
Arsenal. Such a biased approach can

Nadia Ramlagan’s description of a 1 GW-day electrical D-T fu-
sion power plant “[Bringing the Sun to Earth: Briefing
Explains ITER Fusion Experiment,” No-

November APS News] sounds benign and reasonable as compared to a coal
burner. Arithmetic reveals the perfect fusion power plant is ridiculous and pestilent. D-T fusion
yields a 3.5 MeV He-4 nucleus and 1.4 MeV neutron. Stated daily emission of 0.5
lbs of 14 MeV neutrons sums to 7.3x10^13 calories or 73 kilo-
tones nuclear, 80% of the power
given 28.8 Ci/mmole specific ac-

We asked Burton
Richter, who chaired the APS
study group that produced the
energy efficiency report, to
comment on the above letter:
Here is his reply:
Robert Levy seems to think the
APS energy efficiency report
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referred PHEVs as one of the
most important developments
in the automotive industry
to reduce both gasoline consumption and emissions.
We did say that if all the light
vehicles were plug-ins with a
40 mile electric range, gasoline consumption would decrease
by 60%.

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ion battery and as such are not
likely to be good enough for the
FULL span of all the light
vehicles on the road. When
they first appear they will be
expensive and will need the
kind of real life testing that
comes from having a fleet of
Chevy Volts running. General
Motors has not announced
prices yet, but as reported in
the auto press, the cost of a
 Volt is likely to be around
$40,000. I expect that within 5
to 10 years battery manufactur-
er will have worked their way
down the learning curve and

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El Paso, TX

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NAS Launches New Program to Connect Scientists and Entertainment Professionals

When the worlds of science and Hollywood collide, the results often highlight the differences between the two cultures instead of concentrates on their similarities. The National Academy of Sciences is trying to change that with a new initiative: The Hollywood Science Exchange. The goal is to connect the entertainment industry with scientists and engineers to work on everything from movies, television, and even video games.

“This is the Academy’s first formal effort to reach out to Hollywood,” said Ralph Cicerone, president of the National Academy of Sciences, at the November 19 symposium opening. “We are establishing the Hollywood Science Exchange’s advisory board. The Exchange is endorsed by the Directors Guild of America, the Producers Guild of America, the Writers Guild of America, and Women in Film. Director Jerry Zucker, producer Janet Zucker and Atrixx Entertainment President/Owner Bill Shong will serve as vice chairs of the advisory board. ‘We love to use the power of Hollywood storytellers to educate,’ Jerry Zucker said. ‘There is a fear of science, and that is what we would like to dispel. We want people to embrace science, to be excited about science.”

At the symposium, film directors and screenwriters were inspired to reach out to their communities. Since the 1980s, superconductivity has been the key to increasing the energy accelerators can reach. The LHC uses 7000 km of superconducting magnets, 2364 miles in diameter and accelerated protons to 7 trillion electron volts. Accelerators have grown exponentially in size and energy over the years. Evans pointed out. The first circular accelerator, built at Berkeley in 1930, was only five inches in diameter and accelerated ions to 80,000 electron volts.

The improvements over the years have been achieved not by the usual engineering and business methods of pushing technology, Evans said. In recent years, the LHC continued on page 6

Scene from a Symposium

Neil deGrasse Tyson is an astrophysicist, and director of New York City’s Hayden Planetarium, so he knows his night sky. That was evident when he entered a wooden plank after the ship sinks, staring up at the night sky.

Director James Cameron went to extraordinary lengths to recreate the actual ship down to the tiniest historical detail, down to the look of the rigging, the NHLA or any other agency to mandate that these sorts of practices is nothing but a bluff that huge numbers of researchers will be happy to call. After all, are they really going to start denying funding based on a failure to meet public outreach requirements? Hardly—especially when the bulk of the review work is done by other researchers in the field. If people in the field are not convinced that outreach or open access are things they should be doing, they’re not going to give it any weight in their research proposals, and those rules will be every bit as effective as speed limits on major highways, which not even the politicians can magically change overnight, it’s not going to happen.

There is no way around the fact that changing scientific or academic culture requires changing the minds of the scientists and academicians who make up those cultures. As lovely as it would be to wave a policy wand and have everything magically change overnight, it’s not going to happen.

The second important implication is this: If you want to change scientific or academic culture, you need to persuade the minds of the scientists and academicians who make up those cultures. As lovely as it would be to wave a policy wand and have everything magically change overnight, it’s not going to happen.

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Change is Coming in More Ways than One

by Michael S. Lubell, APS Director of Public Affairs

“Brother, Can You Spare a Dime?” Yip Harburg and Jay Gor-...
tion and outreach. How do you view the Society’s role in public policy? A: I think about this on a daily basis. How are we doing this? Ex- panding that program, which APS Director of Education Ted Hodapp has a proposal to NSF to do this. The focus is also, doubling the number of physics majors is critically important. A number of physics departments have been in a state of decline, in physics and have exceptional- ly vital undergraduate programs. This is one of the things that I’m looking at. Q: What can we ensure APS has funds for all of these critically important programs in the future? A: This is my job. That is my job. That is what I work on. We have been quite successful in the 21st century in terms of raising funds, physics, resulting in new perspectives and approaches to the theory (and the number of people doing theory). For example, it’s recognized that mathematical characterizations of quantum entanglement are very efficient for quantum many-body systems and also new approaches to the simulation of quantum many-body systems,” said D’Vincenzo. A sym- posium at the 2009 March Meet- ing will highlight recent Quantum Simulation. “QGI is a very young group, but nevertheless I’m very pleased with our presence at the March Meeting this year and we’ve been able to,” said Viola. At the 2007 March Meeting in Denver, QGI held a total of 13 sessions that the group has either sponsored or co-sponsored, while last year in New Orleans the num- ber of sessions increased to 20, on top of several heavily attended tutorials. What we want to do is to boost this. For example, the upcoming 2009 meeting in Pittsburgh is still in the works, the group will continue to have a sig- nificant number of people to talk. Thus far, at least 4 sessions have been confirmed, 2 are pure QGI sessions and 2 are co-sponsored with the Division of Condensed Matter Physics. “I think these things should be taken as a strong indication of the scientific solidarity and visibility of the group within the broad physics community. We are also putting a lot of emphasis on educating young students and researchers to attract them to the area,” said Viola. The group awards “Best Stu- dent Poster” and “Best Student Paper” at the March Meeting, open to both un- dergraduate and graduate students. In the future, the QGI has ambiti- ous plans to create more major prizes for recognizing outstanding achievements in theory and ex- periments in quantum information processing among both young and established researchers. Gabriel presents a petition to Anton Zeilinger of the Univer- sity of Vienna and Daniel Green- berger of the City College of New York (CUNY). The letter, pre- sented to APS in 2002, expressed support for the elimination of some- what in our schools. The second reason I decided to choose physics was that my brother, who is nine years older than me and went to MIT, made a comment to me, “there’s no way you could do physics in MIT.” I applied to MIT, I got in, and I went and majored in physics. It was partly because I like physics, but also the challenge he set. I was really excited by the fact that you could do research right away at MIT, and that was so re- warding I stayed in the field. Q: What have been your ca- reer highlights? A: I spent about nine years actively engaged as a bench research scientist at Bell Labs. I decided to go to MIT, and when I was convinced to go into man- agement, and I had a career in management and research there for another five years, which was very challenging, but also very rewarding. The third part of my career, I’ll call public service, I’ve been involved in working with national lab and doing a great deal of work with APS, with the National Academies, and on var- ious committees. Throughout my whole career I’ve gotten to un- derstand the research enterprise as a whole, and that’s also very rewarding. Whatever I’m doing, I would like to have an impact. And I believe I have had an im- pact in all three areas. QUANTUM continued from page 3 theory to problems in quantum me- chanics, Quantum Shannon Theory has overlapped with areas that are much more mainstream in physics, resulting in new perspectives and approaches to the theory (and the number of people doing theory). For example, it’s recognized that mathematical characterizations of quantum entanglement are very efficient for quantum many-body systems and also new approaches to the simulation of quantum many-body systems,” said D’Vincenzo. 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QUANTUM continued from page 3 theory to problems in quantum me- chanics, Quantum Shannon Theory has overlapped with areas that are much more mainstream in physics, resulting in new perspectives and approaches to the theory (and the number of people doing theory). For example, it’s recognized that mathematical characterizations of quantum entanglement are very efficient for quantum many-body systems and also new approaches to the simulation of quantum many-body systems,” said D’Vincenzo. A symposium at the 2009 March Meeting will highlight recent Quantum Simulation. “QGI is a very young group, but nevertheless I’m very pleased with our presence at the March Meeting this year and we’ve been able to,” said Viola. At the 2007 March Meeting in Denver, QGI held a total of 13 sessions that the group has either sponsored or co-sponsored, while last year in New Orleans the num- Q: How can we ensure APS has funds for all of these critically important programs in the future? A: This is my job. That is my job. That is what I work on. We have been quite successful in the 21st century in terms of raising funds, physics, resulting in new perspectives and approaches to the theory. The other cohort that is about 2/3 of physicists, APS should do. Other things that APS does and the use of more technology to in- form our efforts? A: I think about this on a daily basis. How are we doing this? Expanding that program, which APS Director of Education Ted Hodapp has a proposal to NSF to do this. The focus is also, doubling the number of physics majors is critically important. A number of physics departments have been in a state of decline, in physics and have exceptionally vital undergraduate programs. This is one of the things that I’m looking at. Q: What can we ensure APS has funds for all of these critically important programs in the future? A: This is my job. That is my job. That is what I work on. 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The US has just gone through a transformative time. In its history—it has just elected its first African-American president. Many people see this as a major milestone, and in and of itself, is indicative of the fact that the US has come a long way since the start of the civil rights movement fifty years ago. For others, it represents the dawn of a new era, a new latitude in America. Overall, one cannot but feel that something is changing. During the gnomes two years of campaigning that each candidate engaged in, the most prominent challenges on the political front were brought to light. On the foreign policy front, one country that was mentioned repeatedly in various contexts was Pakistan and its role in the international sphere was scrutinized at length. It is therefore crucial for us to understand Pakistan and its policies from various perspectives. This article will discuss the nuclear and science policy of Pakistan and its role in regional stability.

Pakistan's nuclear tests in 1998 shortly after India's tests served as a stern reminder that the pursuit of weapons of mass destruction was far from over. The architect behind Pakistan's nuclear program was Abdul Qadeer Khan, who is considered a hero among the Pakistani population in spite of the fact that he allegedly sold nuclear secrets to other nations considered to be hostile to the US. His reputation in Pakistan was unimpeached and many considered him to be a scapegoat of the government as part of a larger conspiracy. Nevertheless, whatever the reality may have been, his abilities as a scientist are not in doubt.

In 2006, the US-Pakistan Joint Committee on Science, Technology and Engineering held its first meeting at the National Science Foundation, “The high speed connection linking Pakistan to the global research community was a major milestone in the development of the global networking infrastructure.” The NSF, “The high speed connection linking Pakistan to the global research community was a major milestone in the development of the global networking infrastructure.” The USA's National Science Foundation, “This represents a major milestone in the development of the global networking infrastructure.” Pakistan and the rest of the Islamic World needs to implement scientistic allies and therefore Pakistan is strategically important for the US. The next meeting is planned for 2009 but it depends on whether President Zardari honors the agreement and decides to continue in this direction.

The US government has much to do. In 2007, the US-Pakistan Joint Committee on Science, Technology and Engineering held its first meeting at the National Science Foundation. It was a major milestone in the development of the global networking infrastructure. Pakistan and the rest of the Islamic World needs to implement scientistic allies and therefore Pakistan is strategically important for the US. The next meeting is planned for 2009 but it depends on whether President Zardari honors the agreement and decides to continue in this direction.

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In the Fall of 2006, President Musharraf was invited to speak at Cornell University. He said that “A.Q. Khan developed a very nuclear program was Abdul Qadeer Khan, who is considered a hero among the Pakistani population in spite of the fact that he allegedly sold nuclear secrets to other nations considered to be hostile to the US. His reputation in Pakistan was unimpeached and many considered him to be a scapegoat of the government as part of a larger conspiracy. Nevertheless, whatever the reality may have been, his abilities as a scientist are not in doubt.

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