

ANNOUNCEMENTS

INDIA-U.S. Travel Grants

Physicists and physics graduate students in India and the United States can apply for travel grants to pursue opportunities in the other country.

The **APS-IUSSTF Professorship Awards in Physics** funds physicists in India or the United States wishing to visit overseas to teach short courses or provide a physics lecture series delivered at a U.S. or Indian university. Awards are up to U.S. \$4,000.

Through the **APS-IUSSTF Physics Student Visitation Program**, U.S. and Indian graduate students may apply for travel funds of U.S. \$3,000 to pursue opportunities in physics. The travel funds could be used to attend a short-course or summer institute, to work temporarily in a laboratory, or for another opportunity that the student and the host professor believe is worthy of support. The Physics Student Visitation Program aims to mostly support graduate student travel to India by U.S. citizens, while enabling some students of Indian citizenship to travel to the United States.

Further details about both programs, including proposal guidelines, are provided at: www.aps.org/programs/international/us-india-travel.cfm

This program is sponsored by the Indo-U.S. Science and Technology Forum (IUSSTF) and administered by the American Physical Society (APS).



Deadline: Friday, 30 March 2012



Reviews of Modern Physics

Colloquium: Stimulating uncertainty: Amplifying the quantum vacuum with superconducting circuits

P. D. Nation, J. R. Johansson, M. P. Blencowe, and Franco Nori

In classical mechanics the "vacuum" is empty (nothingness). In contrast, the vacuum of quantum mechanics is a volatile sea of ephemeral virtual particles. This Colloquium describes several processes in which these vacuum fluctuations are amplified into real observable particles, and how superconducting circuits can be used to realize such amplification mechanisms, and therefore explore the properties of the quantum vacuum. http://rmp.aps.org/abstract/RMP/v84/i1/p1_1

<http://rmp.aps.org>

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debt ceiling culminated in the Budget Control Act (Public Law 112-25)—or technically the amendments to the 1985 Gramm-Rudman-Hollings Act (Public Law 99-177)—which cleared the Senate on August 12 and immediately received President Obama's stamp of approval. The legislation established annual discretionary spending caps that would save \$917 billion over a ten-year period. It also set up a 12-member bipartisan joint select committee and charged it with finding \$1.5 trillion additional in deficit reductions. If the committee failed to do so, \$1.2 trillion across-the-board reductions in discretionary spending would begin on January 2, 2013.

Failure, the president said, would be an intolerable outcome. Failure, House Speaker Boehner, said would be unacceptable. Failure, Senate Majority and Minority Leaders Reid and McConnell, said was unthinkable. But in the poisoned partisan atmosphere the intolerable, unacceptable and unthinkable happened. And in a year's time, the triggered reductions will kick in, with defense spending taking an 11-percent hit and non-defense activities, including almost all of science, looking at an 8-percent buzz cut.

For now, though, research budgets are benefiting from a small uptick, largely because last-year's chaos and confusion allowed science champions to push the spending envelope in an unexpected way.

Here's how it happened:

House appropriators began their work last spring under the \$1.019 trillion Ryan budget plan, \$35 billion below the previous year's spending. They completed much of their work before the ink was dry on the Budget Control Act (BCA). And although the BCA

reined in discretionary spending, for fiscal year 2012, it provided \$24 billion more than the Ryan budget. That proved to be a boon to Senate appropriators, who hadn't even started their dithering until midsummer.

The Democratic Senate majority immediately seized on the unexpected largess and began filling holes in social programs, knowing that they would have to strike deals with their House counterparts during end of the year conferences. And when the conferees finally met, House appropriation subcommittee chairs, Frank Wolf (R-VA 10th) and Rodney Frelinghuysen (R-NJ 11th), both science boosters, used the higher BCA cap to rescue the research budgets under their purview.

For fiscal year 2013, science will confront a much thornier thicket. Facing the mandated BCA reductions, every interest group will be battling to boost its favored account. And without strong advocacy, scientists should be prepared for federal spending on research and education to tumble.

This year is unlikely to see the Washington partisan atmosphere become any less toxic. President Obama is expected to use a "Republican do-nothing Congress" as his political foil. Democrats, fearful of losing control of the Senate, will focus their ire on intransigent obstructionist House Republicans. And Republicans will blast the President and congressional Democrats for fiscal irresponsibility and economic ineptitude.

In the midst of the partisan war, the Supreme Court will launch its own rocket-propelled-grenade: a judgment on the constitutionality of the individual health care mandate. P.T. Barnum would love it—a four-ring circus on the banks of the Potomac.

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the report. In the case of the Energy Critical Elements report, the committee, after several teleconferences throughout early 2010, held a conference in April where each member presented a white paper on their subjects in the report, then gathered in Washington, DC in September to meet with those who might be affected by the study, such as people in the Department of Energy and the Office of Science and Technology Policy as well as executives in the mining industry. Between October and November the report was written up and finally presented

publicly at the annual meeting of the American Association for the Advancement of Science in February of 2011.

However, the process does not stop with the publication of the report. Members of the APS media and public affairs team then work to get the word out to members of Congress, industry regulators, scientists and the general public. Editorials are written and sent to news outlets. If there is congressional action on the subjects of the report, the lead author is often called before the Senate or House committee that oversees the matter.

Brazil-U.S. Exchange Program

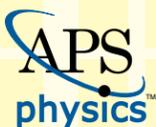
The American Physical Society is now accepting applications from U.S. applicants for the Brazil-U.S. Exchange Program.

Through the **Brazil-U.S. Physics Student Visitation Program**, graduate students can apply for travel funds to pursue a breadth of opportunities in physics, such as: 1) attending a short-course or summer institute; 2) visiting with a professor in his/her field of study; 3) working temporarily in a lab; or 4) any other opportunity that the student and professor feel is worthy of travel support. Grants are for up to USD \$3,000.

The **Brazil-U.S. Professorship/Lectureship Program** funds physicists in Brazil and the United States wishing to visit overseas to teach a short course or deliver a lecture series in the other country. Grants are for up to USD \$4,000.

The application deadline for U.S. applicants traveling to Brazil is 30 March 2012. Applications from U.S. applicants should be submitted to Michele Irwin, APS Office of International Affairs, Irwin@aps.org. Additional information about the program, including application guidelines, is provided at: www.aps.org/programs/international/

Information for applicants from Brazil can be found on the SBF website at: www.sbfisica.org.br/v1/



This program is sponsored by the Sociedade Brasileira de Física (SBF) and the APS.



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recipients as well.

"I am pleased to have been selected," Quinn said. "The financial support has been welcome in my coming to Boston and presenting my lecture."

The Beller lectureship was endowed by Esther Hoffman Beller to bring eminent physicists from abroad to speak at APS meetings. The Marshak lectureship was endowed by Ruth Marshak in honor of her late husband, Robert Marshak, to bring physicists to the APS meetings from "developing nations or the Eastern Bloc." The recipients of both awards receive travel stipends to attend either the March or April meetings. Recipients have traveled to the United States from as far abroad as India, Israel and France.

"It is my great honor and pleasure to be selected," Min said. "I

hope this opens more wide communication within the world science community on seeking... more effective way[s] of collaboration and cooperation."

Yavaş echoed this sentiment, adding that he was excited to share the work of the Turkish Accelerator Center with physicists from around the world.

"[I]nternational exposure at a large meeting like the APS March Meeting is a golden opportunity to inform your scientists about the status and future plans of physics in Turkey," Yavaş said.

Sessoli said that she planned to use some of the funds to help bring a student from her lab to the meeting who would not have been able to attend otherwise.

"Beyond the economic support, which is always welcome as it will allow [us] to use the saved

funds to allow [a] younger researcher of the lab to attend [the] international meeting, the major benefit is that the lectureship will probably allow my presentation to stand out from a very rich program," Sessoli said.

At the March Meeting, Sessoli will deliver her talk on "Single Molecular Magnets on Conductive Surfaces" on Tuesday in session H13 at 8:36 am. Quinn will give his lecture titled "From Artifacts to Atoms: The Origins and Early Years of the International Bureau of Weights and Measures" on Thursday in session X2 at 3:06 pm. Yavaş will speak about The Turkish Accelerator Center on Monday in session B2 at 1:03 pm. Min will deliver his talk titled "The Korea Project" in an April Meeting session that has yet to be determined.

APS NEWS online:

<http://www.aps.org/publications/apsnews>