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## Students Learn About NASA

- About 200 middle school and high school students from Amityville, Longwood, and Rocky Point visited the science museum at the Department of Energy's Brookhaven National Laboratory on October 15 to learn all about living and working in space.
- Ronald Ernst, a member of the National Aeronautics and Space Administration's Aerospace Education Services Program, spoke to the students about the future research of the NASA Space Radiation Laboratory at Brookhaven, where researchers will study the biological effects of radiation in space on astronauts.
- Before prolonged space missions are undertaken, such as a mission to Mars, we must have a detailed understanding of these effects to plan how to effectively protect the astronauts.



Robert Ernst with students at the BNL Science Museum.

## Nanoscale Model Catalyst Paves Way Toward Atomic-level Understanding

- Removing sulfur from fossil fuels, such as oil and coal, is very important because the resulting fuels burn more cleanly and efficiently.
- One common way of doing this is to add hydrogen in the presence of a catalyst to release hydrogen sulfide (H<sub>2</sub>S). (A catalyst is a compound that speeds up a chemical reaction without itself being affected). Recently, the catalyst, RuS<sub>2</sub>, was found to be 100 times more active than the catalyst most commonly used.
- Researchers at the Lab succeeded in making a model of the catalyst - nanoparticles supported on an inert surface; this model can be studied under laboratory conditions. By understanding why this catalyst is so active, researchers might be able to make it even better, or use what is learned to design other highly efficient ones.

(over)

## Pill Aids Cocaine Addicts

- Scientists have shown that a drug used for treating epilepsy in Europe and other countries can remove the craving for cocaine in hard-core addicts.
- A small study was carried out in Mexico to assess the effects of this drug, vigabatrin (also known as GVG), on addicts. Forty percent of the people in the study completed it without showing any signs of relapse.
- According to Stephen Dewey, one of the study's lead investigators and a neuroscientist at Brookhaven Lab, no drug has ever come close to causing the abstinence found with vigabatrin.
- These results come at a time when both industry and the federal government are very interested in using pharmaceutical products to treat addiction. Currently, there is no effective drug for treating cocaine addiction.
- In the next step, the researchers will repeat the study with new participants, and watch closely for any reports of disturbances of vision in them. If that hurdle is cleared, the scientists will move to larger clinical trials that the U.S. government will support.

## The Laboratory Develops 'ThraxVac' to Clean up Anthrax

- Laboratory researchers are developing a device called, "ThraxVac" that vacuums up anthrax and other bacterial spores, then, with heat and moisture, "tricks" the spores into germinating, making them vulnerable to injury.
- The newly activated spores then are bombarded with a form of radioactivity, alpha particles, which cannot penetrate skin or clothes. The alpha particles kill the spores, rendering them nontoxic.
- Researchers do not actually work with anthrax at Brookhaven Laboratory; instead, they work with a genetically identical bacterium that does not contain or produce the dangerous toxins that anthrax itself produces.
- The final steps before commercialization will be to make a prototype and optimize it for field use. The device, for which a patent is pending, has been licensed to Circle Group Holdings, Inc., a public company based in Illinois.

### Upcoming Events Open to the Public

*Gilles Vonsattel, Piano, November 19, noon, Berkner Hall.* Swiss-born Gilles Vonsattel won the 2002 Naumberg International Piano Competition, leading to performances in Alice Tully Hall and around the nation, and he received First Prize at the 1999 Boston Symphony Orchestra competition. His repertoire reveals a preference for technical challenges! Free.

*Stony Brook String Trio, December 3, noon, Berkner Hall.* Free.

*David Bouchier, December 17, noon, Berkner Hall.* Award-winning essayist. Free.

For details on the December events call (631) 344-2345.

Due to heightened security, everyone 16 and older who enters the Laboratory site must have a photo ID.