Students Join Brookhaven Lab's NASA Space Radiation Summer School

Press Release From: Brookhaven National Laboratory (http://www.bnl.gov/)
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Students and scientists from laboratories and universities throughout the world have travelled to New York to participate in the sixth annual NASA Space Radiation Summer School at the U.S. Department of Energy's Brookhaven National Laboratory, which runs from May 27 through June 19. Working in Brookhaven Lab's Medical Department and NASA Space Radiation Laboratory (NSRL), the group will study the risks astronauts may face during future long-term space flights. NSRL is a unique facility that simulates the harsh radiation environment of outer space. Seventy-eight students and scientists have participated in the program to date.

Studies at NSRL (http://www.bnl.gov/medical/NASA/LTSF.asp (http://www.bnl.gov/medical/NASA/LTSF.asp)) simulate space radiation to learn how the intense rays may promote the development of cancer, as well as how this radiation can affect the central nervous system and other organ systems of the body. NSRL researchers are also looking at ways to protect against these dangers through shielding, biological countermeasures, and other strategies to minimize the risk to space travelers.

As the space shuttle approaches retirement and the International Space Station nears completion, NASA is building the next fleet of vehicles to bring astronauts back to the moon, and possibly to Mars and beyond. These longer-distance, long-term missions will expose astronauts to far higher levels of radiation than previously experienced. It is critically important to learn the potential effects of these intense rays and how best to protect space travelers from them. Space radiobiology, a field that blends the disciplines of physics and biology, addresses these questions.

"The radiation environment in space is heterogeneous, and contains charged particles of high energies. The NSRL enables researchers to perform studies here on earth to examine the biological effects of exposure to these charged particles," said Peter Guida, Medical Department Liaison Scientist for this program at Brookhaven Lab. "This type of research is essential to help determine the possible risks that space travelers may encounter." Guida is coordinating efforts with William F. Morgan of Pacific Northwest National Laboratory, the 2009 NASA Summer School Scientific Director.

Said Morgan, "We want to increase the pipeline of researchers who can tackle these challenges. It is important to educate and nurture the next generation of scientists, as the types of radiation commonly encountered in space are quite different than those we are likely to be exposed to on Earth. The NASA Space Radiation Summer School provides a unique opportunity for students and scientists alike."

The program has three scientific modules: physics (led by John Norbury of NASA Langley Research Center), biology (led by Gregory Nelson of Loma Linda University Medical Center), and experimental methods (led by Janet Baulch of the University of Maryland).

Sixteen graduate students, post-doctoral fellows, and working scientists, and four auditing professionals are participating in this year's summer school (see http://www.bnl.gov/medical/nasa/NSRSS/2009/Students_2009.asp (http://www.bnl.gov/medical/nasa/NSRSS/2009/Students_2009.asp)). The program is sponsored by NASA and organized and managed by Brookhaven Lab, Loma Linda University Medical Center, and Universities Space Research Association (a consortium of universities, research organizations, and governmental groups involved in space research).

The intensive, three-week course offers a unique physical and intellectual environment not duplicated in the nation's universities, medical schools or research institutes. Students participate in both classroom activities and scientific experiments, working side-by-side with top space scientists from research organizations such as NASA, Brookhaven Lab, Pacific Northwest National Laboratory, Lawrence Berkeley National Laboratory, Loma Linda University, Columbia University, University of Pennsylvania, Massachusetts General Hospital, UT Southwestern Medical Center and University of Maryland Medical School in Baltimore. Experimental creativity and interdisciplinary approaches are emphasized.

NSRL is a $34-million facility that was built by Brookhaven Lab with funding from NASA with the cooperation of the Office of Nuclear Physics within the U.S. Department of Energy's Office of Science. Operational since 2003, the facility is part of the Lab's collider-accelerator complex, which is maintained by the DOE Office of Science's Office of Nuclear Physics and receives incremental operations and maintenance funding from NASA. It employs beams of heavy ions extracted from Brookhaven's Booster accelerator that are the best in the U.S. for studying the effects of radiation on living organisms. Scientists from more than 20 research institutions from throughout the U.S. and abroad work year-round at NSRL, supported mainly by NASA funding.

Journalist note: Contact us (see below) to arrange a photo of a particular individual student or group. Students will be at Brookhaven Lab until June 19.

One of ten national laboratories overseen and primarily funded by the Office of Science of the U.S. Department of Energy (DOE), Brookhaven National Laboratory conducts research in the physical, biomedical, and environmental sciences, as well as in energy technologies and national security. Brookhaven Lab also builds and operates major scientific facilities available to university, industry and government researchers. Brookhaven is operated and managed for DOE's Office of Science by Brookhaven Science Associates, a limited-liability company founded by the Research Foundation of State University of New York on behalf of Stony Brook University, the largest academic user of Laboratory facilities, and Battelle, a nonprofit, applied science and technology organization.

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