

5TH NASA SPACE RADIATION SUMMER SCHOOL — JUNE 2008

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INTRODUCTION AND PURPOSE

The 5th NASA Space Radiation Summer School (NSRSS) will be held during June 2008 at Brookhaven National Laboratory (BNL) on Long Island, New York. This three-week course is designed to offer graduate students, postdoctoral fellows, and faculty an integrated curriculum of radiation biology, radiation chemistry, and physics culminating in hands-on accelerator-based experiments using the synchrotron facility at the NASA Space Radiation Laboratory. The summer school is a unique comprehensive space particle research training experience, not currently available anywhere else worldwide.

METHODS

Applications will be accepted up to the deadline of 28 February 2008. Both foreign nationals and U.S. citizens may apply. All selected students must satisfy BNL safety and security requirements in order to be admitted. Due to the intense nature of the course, selected student must demonstrate oral and written proficiency in the English language. Expenses for travel within the U.S. and for room and board on the BNL site will be covered for those selected for the program. Successful applicants from outside the U.S. must provide for their travel to and from one of the three New York/Long Island Airports (Kennedy, LaGuardia, or Islip). Up to 15 students selected will be announced in March 2008.

The course includes lectures, and informal discussion time with a distinguished faculty of expert leaders in relevant scientific fields from university and national laboratories actively engaged in NASA space radiation research and BNL experts in heavy ion experimentation and methods. Course work also includes laboratory experiments (physics and *in vitro* and *in vivo* biology) and data analysis, and tours of many BNL facilities. Lecture topics include DNA damage and repair, genotoxicity measurements, cell cycle checkpoints and apoptosis, the bystander effect, genomic instability, neurodegeneration, tissue remodeling, and the relationships of these processes to carcinogenesis and late degenerative effects following exposure to space radiation, as well as the space radiation environment, physics and biochemistry of charged particle interaction with condensed matter, ionizing radiation dosimetry, and accelerator operations. The course is conducted Monday through Friday. The students have free time on weekends to visit numerous attractions on Long Island and in nearby New York City.

RESULTS

The caliber of students applying each year to the NSRSS has steadily increased, making the selection of only 15 students a difficult task. Students from the four previous NASA Space Radiation Summer Schools have highly rated the training and experience received, and tracking of their careers after the NSRSS indicates many continue to participate in NASA-supported research. Student evaluations have also led to successive improvements in the curriculum and optimizing operational aspects of the school, and the 2008 5th NSRSS program will benefit from this history. A goal of the NSRSS is to train the next cadre of space research scientists for the future, and Principal Investigators to whom NSRSS graduates report have indicated the program does indeed provide important background and practical experience toward this goal.

CONCLUSION

The educational outreach effort of the NASA Space Radiation Summer School fills an important niche to provide an intense, integrated coverage of important scientific disciplines relevant to the unique challenges of space research.

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