

# News Release

National Aeronautics and  
Space Administration

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## **NASA SEEKS PHYSICISTS AND MATERIALS SCIENTISTS TO STUDY RADIATION SHIELDING**

Radiation shielding will be critical for future spacecraft designed for longer crew deployments and especially for journeys to the Moon, Mars and other destinations. To protect space crews from harmful radiation, NASA's Office of Biological and Physical Research has expanded its radiation research program.

A new NASA Research Announcement (NRA) soliciting proposals for radiation shielding research is scheduled for release Sept. 5, with proposals due to NASA by Dec. 5. Researchers can learn more about responding to this NRA at:

[http://research.hq.nasa.gov/code\\_u/code\\_u.cfm](http://research.hq.nasa.gov/code_u/code_u.cfm)

This year, 13 research teams responding to two NASA Research Announcements (NRAs) were awarded grants to conduct research on radiation shielding materials. The five latest radiation shielding selections are described at

<http://www1.msfc.nasa.gov/NEWSROOM/news/releases/2003/03-120.html>

Radiation shielding materials research focuses on two areas: developing accurate computational tools to predict the radiation shielding effectiveness of materials and investigating new materials for spacecraft shielding.

Estimating the radiation shielding effectiveness of materials requires a radiation transport code that not only propagates electrons, protons and other singly ionized particles but also atomic nuclei at least up to nickel. To create such a transport code requires basic research to expand our knowledge of theoretical and experimental nuclear physics. Because of the large number of nuclear cross-sections required for such a code, most must be calculated theoretically.

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Important cross-sections will be studied at the new \$34 million NASA Space Radiation Laboratory (NSRL) and the Alternating Gradient Synchrotron at the Department of Energy's Brookhaven National Laboratory on Long Island, N.Y. The NSRL is scheduled to open in the fall/winter of 2003 and will provide beams of radiation that are the same types and energies as those found in space.

In the second area, NASA is focusing on developing materials that can serve both as radiation shielding and as spacecraft construction materials. Both basic and applied research on new materials is needed to accomplish this task. Candidate materials include hydrocarbons such as reinforced polyethylene, encapsulated lithium borohydride and hydrogen-filled carbon nanotubes. Ideas for other materials are sought.

For more information about NASA's space radiation shielding research on the Internet, visit:  
<http://radiationshielding.nasa.gov/>

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Below are links to this news release on our Web site.

## **The Web News release**

<http://www1.msfc.nasa.gov/NEWSROOM/news/releases/2003/03-124.html>

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