Woodrow Wilson International Center for Scholars

News Release

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Top "Green" Nanotechnology Researchers Present Results March 26-29 at ACS Meeting in Atlanta, GA

New Environmentally-Friendly Technologies based on Nanotech Possible

WASHINGTON—Leading U.S. scientists and engineers in the field of nanotechnology and the environment will present their latest research findings at an important eight-session symposium at the annual American Chemical Society (ACS) meeting in Atlanta, Georgia during March 26-29, 2006.

The symposium also will offer an assessment on the "state of the science" of environmental nanotechnology, especially about more environmentally-friendly nanotechnology manufacturing processes and new nanotechnology applications for environmental remediation.

This symposium comprises part of the GreenNano initiative launched earlier this year by the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars—a project supported by The Pew Charitable Trusts.

GreenNano aims to advance development of clean technologies using nanotechnology, to minimize potential environmental and human health risks associated with the manufacture and use of nanotechnology products, and to encourage replacement of existing products with new nano products that are more environmentally friendly throughout their lifecycle.

Key presentations at the symposium include:

- The latest on advances in making cheaper, more efficient solar cells by Dr. A. Paul Alivisatos, a chemist at the University of California, Berkeley, and co-editor, ACS journal *Nano Letters*. Recent efforts to develop **improved solar cells using nanomaterials** could lead to cheaper and more sustainable ways to generate electricity.

- Development of new proton exchange membranes that could result in **better, more efficient fuel cells** by Dr. Joseph M. DeSimone, a chemist at the University of North Carolina, Chapel Hill. In addition to more efficient fuels cells, this research also may allow methanol to be used directly as a fuel source instead of hydrogen.

- **Polymer nanosphere sensors that can be used to detect hazardous materials in aquatic environments** at parts per billion levels, by researchers at Oklahoma State University, Stillwater, OK. The sensors—which change their shape and optical properties depending on the chemical that is present—can be read by optical scanners to identify a hazardous chemical and lead to better detection and cleanup methods.

- A report on a **new, more energy-efficient method for making highly water-soluble carbon nanotubes**—using microwave energy—by researchers at the New Jersey Institute of Technology (NJIT), Newark, NJ, led by Dr. Somenath Mitra. Because the

new nanotubes are more soluble than other carbon nanotubes (up to 125 times more water soluble), they are both energy saving and more functional for a wider variety of potential applications, including faster computer chips and improved drug delivery.

- The **role of surface chemistry in designing non-toxic nanomaterials** by Dr. Vicki Colvin, director of the Center for Biological and Environmental Nanotechnology, Rice University, Houston, TX. This research is being used to guide the development of greener nanomaterials that are less likely to pose health and environmental risks.

This GreenNano initiative is being led by Dr. Barbara Karn, on detail to the Project on Emerging Nanotechnologies from the U.S. Environmental Protection Agency's Office of Research and Development. For the past five years, Dr. Karn managed EPA's nanotechnology research program. She is a nationally-recognized expert in combining nanotechnology with green chemistry, industrial ecology, and sustainability.

According to Dr. Karn, "Nanotechnology promises to dramatically change the products we manufacture and the way we do manufacturing in virtually every area—electronics, transportation, food, and consumer goods. It offers us the opportunity to make products and processes 'green' from the beginning. We simply cannot let this opportunity pass by."

"Nanotechnology holds tremendous potential for pollution prevention and enabling a new generation of environment technologies," said Project on Emerging Nanotechnologies Director David Rejeski. "Through our GreenNano initiative, the Project is committed to ensuring that nanotechnology helps create a more sustainable economy."

The initiative involves a series of meetings, including this symposium at the ACS annual meeting, which will result in a major report about how to apply the principles of green chemistry and green engineering to nanotechnology. The initiative also will explore policies designed to encourage green nanotechnology's development.

Nanotechnology is the ability to measure, see, manipulate and manufacture things usually between 1 and 100 nanometers. A nanometer (nm) is one billionth of a meter; a human hair is roughly 100,000 nanometers wide.

There are currently more than 200 consumer products now on the market claiming to use or contain nanotechnology—everything from cosmetics and sunscreens to paint and wrinkle resistant clothing. According to EmTech research, there also are more than 600 electronics components, raw materials, drug delivery technologies, and research, process, and software tools that presently are used to research nanoscale technologies, manipulate nanomaterials and fabricate at the nanoscale.

The National Science Foundation predicts that the global marketplace for goods and services using nanotechnologies will grow to $1 trillion and employ 2 million workers by 2015.

A schedule for the March 26-29 symposium is available. All sessions will be held at the Georgia World Congress Center in Atlanta. For a complete schedule of GreenNano programs, see: www.nanotechproject.org.

The **Project on Emerging Nanotechnologies** is an initiative launched by the Wilson Center and The Pew Charitable Trusts in 2005. It is dedicated to helping business, government and the public anticipate and manage possible health and environmental implications of nanotechnology. For more information about the Project, log on to www.nanotechproject.org.

The Pew Charitable Trusts is a national charitable organization serving the public interest by informing the public, advancing policy solutions and supporting civic life. Based in Philadelphia, with an office in Washington, D.C., the Trusts will invest $204 million in fiscal year 2006 to provide organizations with fact-based research and practical solutions for challenging issues.

The **Woodrow Wilson International Center for Scholars** is the living, national memorial to President Wilson established by Congress in 1968 and headquartered in Washington, D.C. The Center establishes and maintains a neutral forum for free, open, and informed dialogue. It is a nonpartisan institution, supported by public and private funds and engaged in the study of national and international affairs.