

National Water Research Institute

May 17, 2011 E-Newsletter

Mark Wiesner, Pioneer in Environmental Nanotechnology, to Receive the 2011 Clarke Prize

NWRI is pleased to announce that environmental engineer Mark R. Wiesner, Ph.D., P.E., the James L. Meriam Professor of Civil and Environmental Engineering at Duke University, will be the eighteenth recipient of the NWRI Athalie Richardson Irvine Clarke Prize for excellence in water research.

Wiesner was selected as the 2011 recipient because of his groundbreaking efforts and leadership in improving water quality through advancements in membrane and nanotechnology research. "I am very honored to receive the Clarke Prize," said Wiesner. "This prize is a great reflection on the efforts of a talented group of student-colleagues with whom I've had the privilege to work."

Consisting of a gold medallion and \$50,000 award, the Clarke Prize is given out each year to recognize research accomplishments that solve real-world water problems and to highlight the importance of and need to continue funding this type of research.

"This year's winner is an active researcher who is just outstanding," said the chair of the selection committee, Roy Spalding, Ph.D., Professor in the Department of Agronomy & Horticulture at the University of Nebraska. "Mark Wiesner is forward-thinking. Not only has he made innovations in the area of membrane technology, but he has also adapted to changes in the field. While others are doing basic research, he is out looking at the next step: assessing the risks involved with applying new technologies to water treatment."

Wiesner's career spans three decades. While still a post-doc, he was among the first American scientists to research the application of low-pressure membranes to water treatment, considered at that time an "emerging" technology. Membranes are thin, porous material used to filter particles from water during the treatment process; state-of-the-art water supply facilities across the globe currently use membranes as part of the water purification process. Wiesner initiated research on the factors controlling membrane performance, and proposed using coagulants as a pretreatment to remove organic matter and prevent membrane fouling (the practice of coagulation as a pretreatment has now become a widely accepted standard for water and wastewater treatment with membranes). Later, he and his students developed cost models that predicted the circumstances in which membrane filtration would be cost-competitive with conventional water treatment technologies – an achievement that was honored with the Rudolph Hering Award from the American Society of Civil Engineers in 1995. The following year, he edited and co-authored the very first membrane process book for environmental engineers, *Water Treatment Membrane Processes*.

His efforts to improve the performance of water treatment membranes led him to a new area of research: investigating the uses of technology at the molecular level ("nanotechnology"). Initially working in the area of applications of nanochemistry to membrane science, he also explored the use of nanomaterials for environmental remediation, as advanced sorbents in water treatment, and as "smart" disinfectants that inactivate viruses without creating harmful byproducts. His work in developing nanomaterial-based technologies for water treatment led him to consider the possible detrimental effects that these materials might have on human health and the environment – in effect, pioneering the field of environmental implications of nanotechnology.

Since the late 1990s, Wiesner has taken the lead in studying the fabrication, transport, fate, toxicity, and risk of nanoparticles in the environment. He co-edited the textbook, *Environmental Nanotechnology*, in 2007, and currently serves on a National Research Council committee to develop a research strategy for

environmental, health, and safety aspects of engineered nanomaterials. One of his major accomplishments was the creation of the Center for the Environmental Implications of NanoTechnology (CEINT) at Duke University, where he serves as Director. A multidisciplinary research effort supported by the National Science Foundation and U.S. Environmental Protection Agency, CEINT is focused on understanding nanomaterial behavior from the nano-scale to the ecosystem-scale and identifying possible risks to human health and the environment. These achievements, among others, have earned Wiesner recognition as the leading researcher in water treatment and environmental nanotechnology.

The Clarke Prize will be presented to Wiesner on Thursday, July 14, 2011, at the Eighteenth Annual NWRI Clarke Prize Lecture and Award Ceremony, to be held in Orange County, California. Established in 1993 in honor of NWRI's co-founder, the late Athalie Richardson Irvine Clarke, the Clarke Prize is one of only a dozen water prizes awarded worldwide and has been distinguished by the International Congress of Distinguished Awards as one of the most prestigious awards in the world. Joan Irvine Smith, co-founder of NWRI and daughter of Athalie Richardson Irvine Clarke, will present the award to Wiesner.

Recent past recipients of the Clarke Prize include: environmental engineer Jerald L. Schnoor, Ph.D., of the University of Iowa (2010); environmental biotechnologist Bruce E. Logan, Ph.D., of The Pennsylvania State University (2009); aquatic scientist Nancy N. Rabalais, Ph.D., of the Louisiana Universities Marine Consortium (2008); environmental engineer James L. Barnard, Ph.D., P.E., of Black & Veatch Corporation (2007); water-quality engineer Philip C. Singer, Ph.D., P.E., of the University of North Carolina at Chapel Hill (2006); and water-quality engineer Menachem Elimelech, Ph.D., of Yale University (2005).

More information about NWRI's Clarke Prize can be found at www.nwri-usa.org/ClarkePrize.htm.

You are receiving this email from NWRI, a non-profit public-private partnership founded in 1991 to promote the protection, maintenance, and restoration of water supplies through the development of cooperative research work. NWRI members include water and wastewater agencies in Southern California. NWRI provides occasional information via email list serve on upcoming events and activities. If you would like to be removed from NWRI's email list serve, please respond to this email with "Unsubscribe" in the subject line and specify the email address you wish to remove. For further questions, please contact NWRI at enews@nwri-usa.org. Thank you.

National Water Research Institute
18700 Ward Street
P.O. Box 8096
Fountain Valley, CA 92728 -8096
714-378-3278
Fax 714-378-3375
www.nwri-usa.org