The University of Maryland invites applications for a Postdoctoral Fellowship position in Time-Reversed Electromagnetics and Acoustics research with Prof. Steven Anlage in the Center for Nanophysics and Advanced Materials, Department of Physics. Recent developments in time-reversed wave mechanics—whether acoustic or electromagnetic—have demonstrated the potential for a new class of applications that would use waves to characterize items of interest, or communicate in novel ways. This project will explore methods to bring such applications closer to fruition. The technical objectives are to develop techniques for exploiting the signature response of a system to a stimulus provided by various wave sources, by time-reversing the response and using it as a new source signal. In particular, we will look for new ways to:

- Communicate selectively or securely;
- Detect changes in a system, or assess its state remotely;
- Sense the presence or absence of an object in a given environment; and
- Induce physical changes in a selected object.

The main goal is to determine a clear pathway to building a practical time-reversed wave-mechanical device by making progress in any or all of the areas listed above.

Experience in high frequency electromagnetics (microwave – optical), acoustics, or related experimental work is most helpful. The ability and interest to pursue challenging, interdisciplinary problems, and good communication and organizational skills are essential. The appointment is for one year, renewable for a second or perhaps a third year. US Citizenship is required.

The candidate could begin as early as July 15, 2010. Applicants with a PhD in experimental physics, engineering, or applied physics should arrange for a CV (with publication list), summary of research experience and interests, and a list of three references to be submitted to: anlage@umd.edu, or Prof. Steven M. Anlage, Physics Department, University of Maryland, College Park, MD 20742-4111; (301) 405-7321. Applications will be accepted until the position is filled. UMD is an EE/AA employer.

NOTES: US citizenship is a requirement of the Postdoctoral Fellowship program (see http://www.icpostdoc.org/fellows.cfm ). Benefits include health/dental insurance and access to all University facilities.

Employer Information: The University of Maryland is a diverse and dynamic research university located in the suburbs of Washington, DC. The surrounding area is filled with many career opportunities for technically-inclined people, and includes NIH, NASA/Goddard, the Naval Research Laboratory, NIST, many universities, APS headquarters, and the US Government. The Physics department is one of the largest in the country and offers an intense research environment with broad interests that draw many prominent speakers and visitors throughout the year. The Center for Nanophysics and Advanced
Materials is focused on correlated-electron physics, electromagnetic scanned probe microscopy, superconducting quantum computing, and novel device physics. The newly established Joint Quantum Institute will draw together many researchers at UMD and NIST into a collaborative effort to study quantum coherent phenomena.

Salary: $50,000/year.
Employer: University of Maryland at College Park
Sector: Academic
Category: Research, Physics and Applied Physics, Research and Development, Materials
Location: College Park, Maryland
Type: Full Time – Experienced
Required Education: Ph.D. in Physics, Applied Physics, or Engineering