



**UH Institute for NanoEnergy
Media Release:**



**US PTO Patent Grant: Embedded
Nanotube Array Sensor and Method of
Making a Nanotube Polymer Composite**

Date: 11-May-2010

The Director of the Institute for NanoEnergy (INE), Dr Seamus Curran, today received notice that a patent application (No. 7,673,521. **Embedded nanotube array sensor and method of making a nanotube polymer composite**), originally filed in 2003, has recently been awarded by the US Patent and Trademark Office (US PTO).

In 2003, while at Rensselaer Polytechnic Institute, Professor Curran developed and directed, with a team of scientists, a novel way of producing polymer/nanotube composites where the density and position of the nanotubes within the composite can be controlled.

Carbon nanotubes are grown from organometallic micropatterns. These periodic nanotube arrays are then incorporated into a polymer matrix by depositing a curable polymer film on the as-grown tubes.

This controlled method of producing free-standing nanotube/polymer composite films may be used to form nanosensors which can be used to provide information regarding the physical condition of a material such as a wind turbine blade, an airplane body or wing.

Alternatively, by choosing different filler materials these arrays can also be used as methods of energy storage where the nanotubes act as the electrical connectors to a novel form of battery system.

The team at the Institute for NanoEnergy (INE) is already working in a number of unique technological directions which will draw on this novel process. One of the major areas of interest at the present time involves the use of sensors on next-generation wind turbine blades. The INE team is also looking at thin film battery systems using similar architectures which could revolutionize the current status of the electricity storage challenge.

The Institute for NanoEnergy was established at the University of Houston in 2009 in order to develop breakthrough technologies in energy storage and generation (solar and wind) by developing organic based nano-photonic, nano-phononic and nanomechanical composites that are manufactured by means of sophisticated material control mechanisms.

Contact: James Glennie, CFA; Director – Business Development
Mobile: +1-832-421-1482
E-mail: jglennie@uh.edu
Web: <http://www.ine.uh.edu/>