

NanoDynamics Carbon Nanotube Patent: New Processing Method Advances Potential for Commercial Success of Carbon Nanotubes

August 25 2004

NanoDynamics, a leading [nanotechnology](#) organization and manufacturer of superior nanomaterials, announced today it has received a United States Patent, which covers the use of sol-gel processing, a well established methodology commonly used in the ceramics industry, in the production of a variety of useful end products comprised of carbon nanotubes.

The process methodology covered by the NanoDynamics' patent can result in two and three dimensionally ordered arrays of single wall carbon nanotubes, making them much more useful in the production of a wide range of end products. Potential end products include **flat-screen TVs, airplane fuselage structures, water filtration systems, composite panels for automobiles, thermal interfaces for integrated circuits, advanced battery systems and biotech applications such as synthetic membranes and skins.**

"This is a significant development for both manufacturers of carbon nanotubes and the industrial community seeking ways to more effectively incorporate these unique materials into a wide range of commercial applications," commented Dr. Alan Rae, Vice President of NanoDynamics. "Carbon nanotubes, because of their size, strength, and ability to conduct heat, will improve the structural and performance capabilities for a host of products in multiple industries. Using

NanoDynamics' sol-gel processing in the production of advanced materials will create more efficient and practical use of carbon nanotubes as we lead the way in identifying solutions for the wide spread commercial applications of nanotechnology."

The US Patent and Trade Office awarded NanoDynamics Patent Number 6,749,712 titled "Method of Utilizing Sol-gel Processing in the Production of a Macroscopic Two or Three Dimensionally Ordered Array of Single Wall Nanotubes." NanoDynamics will make this process patent available under a non-exclusive license to companies interested in achieving commercial success with carbon nanotubes.

Douglas DuFaux, Director of Intellectual Property for NanoDynamics' ND Innovations business unit, commented, "The exceptional electrical, thermal, and mechanical properties of carbon nanotubes are of tremendous interest to a wide range of industries for many applications. Currently, the processing of these materials into useful end products has been challenging given their extremely small size and high degree of entanglement often observed in bulk processing of nanotube material. The technology described in this patent provides for a method of successfully processing nanotubes into useful ordered arrays to derive maximum benefit from this novel material. We look forward to working with companies interested in licensing this patent and advancing their commercialization plans with carbon nanotubes."

Carbon nanotubes, atomically small fibers of pure carbon that reportedly conduct electricity better than copper and transmit heat better than a diamond, have been touted as one of the strongest materials in existence. Numerous groups have estimated that nanotubes are one hundred times stronger than steel and 1/6th the weight. If confirmed, these materials would offer exceptional potential for structural and composite materials used by the aerospace and automotive industries.

Previous industry attempts to process carbon nanotubes have had little success because carbon nanotubes are not readily solubilized, which makes them difficult to disperse in a homogeneous fashion compared to common engineering materials. Sol-gel processing promises to overcome these barriers by treating carbon nanotubes in a liquid state, making them easier to manipulate and organize into ordered arrays.

Source: NanoDynamics

Citation: NanoDynamics Carbon Nanotube Patent: New Processing Method Advances Potential for Commercial Success of Carbon Nanotubes (2004, August 25) retrieved 19 April 2024 from <https://phys.org/news/2004-08-nanodynamics-carbon-nanotube-patent-method.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.