

## What's New in the World of Superconductivity in December

### Power Applications

#### **American Superconductor Corporation (December 10, 2001)**

American Superconductor Corporation has received the 2001 Financial Times Global Energy Award for the production of its HTS wire. The award honors outstanding accomplishments in the international energy industry in a number of categories; American Superconductor was chosen from among seven finalists in the category for "Pre-Commercial Technology Development of the Year". American Superconductor recently opened the first HTS wire manufacturing facility in the world. The facility is capable of producing 20,000 kilometers of wire annually; by the end of 2002, American Superconductor expects to increase wire production to 3,000 kilometers per year.

Source:

"American Superconductor Receives 2001 Financial Times Global Energy Award"  
(American Superconductor Press Release, December 10, 2001)

<http://www.amsuper.com/>

### Material

#### **Nano-C LLC (November 30, 2001)**

Nano-C LLC has developed a new mass production process for the synthesis of fullerenes, promising carbon molecules with potential superconducting and other industrial applications. The company is in the process of scaling up a patented combustion synthesis process that should reduce the cost of these molecules by a factor of 10 to 100. The expected cost reduction should enable companies to acquire the quantities of fullerenes needed for the commercial production of new devices and applications. Worldwide fullerene production is currently less than 100 kilograms per year; however, Nano-C LLC expects that with their new process, they will be able to increase fullerene production to several tons a month by 2004. Presently, over 2000 patents for applications utilizing fullerenes exist, and the 2004 market is estimated to exceed US\$ 100 million annually. The company is presently seeking partners and has signed its first non-exclusive licensing agreement with

Fullerene International Corporation, a Mitsubishi Corporation joint venture.

Source:

"Nano-C LLC Extending Commercial Production Process for Fullerene Carbon Molecules, Seeking Partners"  
(Nano-C LLC Press Release, November 30, 2001)

<http://www.nano-c.com/press.htm>

#### **University of Toronto (December 12, 2001)**

In the Dec. 13 issue of *Nature*, physicists at the University of Toronto published evidence that disproves the Wiedemann-Franz law, one of the oldest and most well-established laws in solid state physics. The law concerns the conduction of charge and heat by electrons and has, until now, been universally acknowledged to apply to all metals. Basically, the law states that a good heat conductor will also be a good electricity conductor. The evidence described in the *Nature* article, however, suggests that in copper oxide materials, electrical charge is conducted in a manner that is completely unrelated to the manner in which heat is conducted. The researchers believe that in copper oxides, the electrons split into two entities: one with a charge, and one without. The findings completely upset current thought on the mechanism of high-temperature superconductivity.

Source:

"Superconducting Metals Research Breaks the Law"  
(University of Toronto Press Release, December 12, 2001)

<http://www.newsandevents.utoronto.ca/bin2/011212a.asp>

### Telecommunications

#### **Superconductor Technologies Inc. (December 13, 2001)**

Superconductor Technologies Inc. has received a follow-on purchase order from a major North American wireless carrier for a minimum of 1,000 SuperFilter® units. Deliveries are scheduled to begin immediately and continue until the first quarter of 2003, with certain minimum delivery requirements stated for each financial quarter. The wireless carrier has selected Superconductor Technologies' HTS filter to be used as a standard component in their networks and will use the filter in all of their new base stations as well as in retrofit solutions for existing stations. The purchase agreement will double the number of SuperFilter® systems installed in actual networks in just over one year and represents the largest single commitment to date for front-end superconducting filter systems in the global wireless industry.

Source:

"Superconductor Technologies Inc. Receives Purchase Commitment for 1,000 SuperFilter ® Systems from Major Wireless Carrier"

(Superconductor Technologies Press Release, December 13, 2001)

<http://www.suptech.com/>

***Superconductor Technologies Inc. (January 8, 2002)***

Superconductor Technologies has announced that its president and chief executive officer, M. Peter Thomas, will chair and present on a panel (entitled "3G Core and Access Infrastructure") at the 3G Mobile World Summit in Japan. This event is scheduled for Jan. 15-18 at the Nippon

Convention Center in Tokyo and is a major international event in the 3G wireless industry. Mr. Thomas will present a lecture on the role of cryogenic receiver front-end systems in improving coverage, capacity and service quality in 3G and other next-generation data networks.

Source:

"Superconductor Technologies Inc. CEO M. Peter Thomas to Present at 3G Mobile World Summit in Tokyo"

Superconductor Technologies Inc. Press Release; January 8, 2002

<http://www.suptech.com/>

(Akihiko Tsutai International Affairs Department, ISTECC)