

What's New in the World of Superconductivity (December)

Power

nkt cables and Southwire Company (December 6, 2002)

nkt cables (Denmark) and Southwire Company (USA) have established a joint venture to develop and manufacture commercial superconducting cable systems; the venture is the result of a technological collaboration between the two companies that has been ongoing since 1998. The agreement for the joint venture known as ULTERA™ was signed on Dec. 6, 2002; the two companies will form a 50:50 general partnership. "Having developed the only two working HTS power delivery systems in the world, Southwire and nkt cables truly are operating at the cutting edge of this new technology," commented Stuart Thorn, Southwire's president and chief executive officer. "Through this partnership, we multiply our technical expertise and expand the resources available to us, ensuring the most-efficient use of both." ULTERA's first project will be the development, manufacturing, and installation of a 300-meter superconducting cable system for a pilot project being performed by American Electric Power in Columbus, Ohio. The US Department of Energy will provide funding for half of the project, and the remaining costs will be split equally between nkt cables and Southwire. Two different cable designs are presently under consideration. The new cable system is scheduled to begin service within the Ohio electricity grid in 2005. Additionally, ULTERA plans to seek collaboration with a European utility in order to engage in a similar European-based superconducting cable pilot project. Collaborations with the Department of Electric Power Engineering at the Technical University of Denmark and with Oak Ridge National Laboratory, USA, will also be continued.

Source:

"nkt cables and Southwire, USA, establish a joint venture for superconducting cables"

nkt cables Press Release (December 6, 2002)

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

"SOUTHWIRE, NKT CABLES JOIN FORCES TO PRODUCE SUPERCONDUCTING POWER CABLE"

Southwire Company (December 6, 2002)

<http://www.southwire.com/news/120602.htm>

American Superconductor Corporation (December 10 and 17, 2002)

American Superconductor Corporation issued two press releases drawing attention to recent articles and announcements that concern the commercialization of HTS technology:

- 1) An article written by Alan S. Brown and published in IEEE Spectrum ("American Superconductor Wins Key Patent", Dec. 9, 2002) describes the importance of patents in the HTS industry and outlines how companies with strong patent portfolios are positioned to benefit as markets materialize.
- 2) An interview with Greg Yurek, chief executive officer of American Superconductor Corporation, was published in The Wall Street Transcript (Dec. 9, 2002; see <http://www.amsuper.com/press/2002/WallStreet.PDF>). In the interview, Yurek outlines the short and long-term business strategies of American Superconductor Corporation as well as the company's key benchmarks for the coming year.
- 3) An article written by Steve Miller and published in the Boston Globe ("After 15 Years, Superconductors Finally Heat Up", Dec. 17, 2002;

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Published by International Superconductivity Technology Center
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- http://www.boston.com/dailyglobe2/351/science/After_15_years_superconductors_finally_heat_up+.shtml) describes the history of HTS wires from 1987 through to the present.
- 4) American Superconductor Corporation announced that it has achieved an important benchmark with the production of the first saleable wire from its HTS wire manufacturing plant in Devens, MA. Commented Greg Yurek, "We are delighted that we are now starting to serve customer needs from this plant, which we believe will be the primary source of HTS wire worldwide for some time to come."
 - 5) An article written by John Howe (American Superconductor Corporation) and published in Public Utilities Fortnightly ("It's the Grid, Stupid!", October issue) discusses how new grid technologies can help the Federal Energy Regulatory Commission (FERC) to achieve its "Standard Market Design". In addition to providing an overview of the FERC's Standard Market Design, the article also describes how technologies such as very low impedance (VLI) cables (containing HTS wires), flexible AC transmission systems (for example, D-SMES and D-VAR), and other technologies can be used to create a more reliable and secure electric transmission grid.

Source:

"Superconductors in the News"

American Superconductor Corporation Press Releases (December 10 and 17, 2002)

<http://www.amsuper.com/html/newsEvents/news.html>

Intermagnetics General Corporation (December 12, 2003)

US Senator Charles Schumer announced a new consortium called "New Energy New York" that will promote the alternative and renewable energy industry in the Capital Region, where more than twenty high-tech alternative energy companies are located. "Alternative energy will do for the Capital Region what microchips did for Silicon Valley," commented Senator Schumer. "Companies in this region are on the forefront of new energy technologies, and as the US moves away from foreign energy dependence, I sense a huge opportunity for local businesses." By forming a consortium consisting of several alternative energy companies, the individual companies are expected to benefit from increased cooperation and coordination on marketing initiatives created to attract attention to the clean energy resource technologies available in the area. The consortium will be headed by Dr. Pradeep Haldar, Director of Energy and Environmental Technologies at Albany NanoTech (University of Albany). One of the companies expected to benefit from the new consortium is SuperPower, a subsidiary of Intermagnetics General that produces HTS cable.

Source:

"SCHUMER FORMS NEW CAPITAL REGION CONSORTIUM TO LEAD U.S. DRIVE FOR ENERGY INDEPENDENCE"

Intermagnetics General Corporation Press Release (December 12, 2003)

http://www.igc.com/news_events/news_story.asp?id=76

Intermagnetics General Corporation (January 7, 2003)

Intermagnetics General Corporation reported second-quarter earnings of US \$ 3.7 million, up from \$ 3.6 million for the same period one year earlier (excluding one-time items in both periods). Including one-time items, the net income was \$2.7 million for the second quarter, compared to \$10.4 million for the same period of the previous year. Net sales for the quarter ending November 24, 2002, totaled \$36.7 million, compared with \$39.0 million for the previous year (including about \$ 4 million in

sales from businesses that were divested in fiscal 2002). The one-time items in the fiscal 2003 second quarter included a non-cash charge related to the sale of Intermagnetics' stock holdings in Ultralife Batteries, Inc. This charge was offset by a favorable settlement in a long-standing trade litigation, for a net charge of about \$ 1 million. While the company's most encouraging financial results were seen in its Instrumentation sector, the MRI division also benefited from an increasing demand for their 3.0 T magnet for MRI systems. MRI sales increased by about 5% in the second quarter to reach \$31.3 million, compared to \$ 29.7 million for the same period in the previous year. Intermagnetics' Energy Technology segment is also progressing well in work aimed at commercializing HTS materials and devices for the transmission and distribution of electric power. SuperPower exceeded its calendar-year goal by producing a 315 amp-meter tape in lengths of more than one meter. In addition, SuperPower is now collaborating with Sumitomo Electric Industries on the development of a \$ 25 million, 350 meter-long power cable to be installed in the Niagara Mohawk distribution grid in Albany, N.Y.

Source:

"Intermagnetics Reports Q2 Eps \$0.22 Vs. \$0.21, Excluding One-Time Items In Both Periods"

Intermagnetics General Corporation Press Release (January 7, 2003)

http://www.igc.com/news_events/news_story.asp?id=80

MRI

Toshiba America Medical Systems (December 1, 2002)

Toshiba America Medical Systems (TAMS) introduced a new open MRI system at the Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA). The system, called "Ultra", is based on gradient technology that enables advanced clinical capabilities and a high resolution normally associated with high-field closed MRI systems. In addition to improved image quality, the faster scan time and open environment provide important benefits to patients and MRI technicians. The Ultra's gradient field technology features an amplitude of 25 mT/m and the industry's best slew rate of 100 T/m/s; this slew rate enables speeds that are five times faster than current open systems and 250% faster than the speeds of comparable high-field systems. A full range of diagnostic procedures can be performed using the Ultra system, including routine neurological, body, and musculoskeletal examinations as well as advanced neurofunctional and cardiovascular studies.

In addition to the Ultra open-system MRI, TAMS demonstrated the expansion of its EXCELART™ series of high-field MRI scanners and presented a preview of its 1.4 T ultra-short bore, high-field MRI system, which is currently under development. The new EXCELART series includes the EXCELART AG (gradient amplitude, 30 mT/m; slew rate, 50 T/m/s) and the EXCELART XG (gradient amplitude, 30 mT/m; slew rate, 130 T/m/s). The EXCELART series also includes the EXCELART AG/S (SPIN Edition) and the EXCELART XG/S (SPIN Edition) systems, featuring SPEEDER technology (Toshiba's patented parallel imaging technology for high-speed imaging) and array coils for the head and torso. EXCELART systems contain a quiet, short-bore 1.5 T MRI and a wide opening (65.5 cm) for maximum patient comfort. The 1.5 T ultra-short-bore, high-field MRI system that Toshiba is currently developing will have the shortest magnet length (1.4 m) available in the MRI industry. The system's high-field strength and powerful computer platform will enable the system to achieve the performance and image quality levels of much larger systems.

Source:

"TOSHIBA EXPANDS CLINICAL CAPABILITIES OF PATIENT-FRIENDLY OPEN MRI WITH

INTRODUCTION OF ULTRA”

Toshiba America Medical Systems Press Release (December 1, 2002)

<http://216.23.181.196/news/pressreleases/120102-433.htm>

“TOSHIBA’S HIGH-FIELD MAGNETIC RESONANCE IMAGING SYSTEMS EMPHASIZE PATIENT COMFORT AND ADVANCED APPLICATIONS”

Toshiba America Medical Systems Press Release (December 1, 2002)

<http://216.23.181.196/news/pressreleases/120102-430.htm>

Communication

Superconductor Technologies Inc. (December 3, 2002)

Superconductor Technologies Inc. (STI) has developed an analysis tool that allows wireless operators to simulate how out-of-band signal interference will affect wireless base stations. The proprietary software tool, known as an interference impact simulator for base station receivers, also enables operators to simulate the effects of various potential solutions capable of eliminating such interference. By using the simulator, operators can develop precise interference solutions designed specifically for their networks, enabling enhanced network performance and increased capital savings. STI demonstrated the simulator and its SuperFilter ® product (which can be used to eliminate out-of-band interference) at the 2002 CDMA Americas Congress (San Diego, USA).

Source:

“Superconductor Technologies Inc. Develops 'Interference Impact Simulator' To Help Address Problem of Out-Of-Band Interference”

Superconductor Technologies Inc. Press Release (December 3, 2002)

<http://ir.thomsonfn.com/InvestorRelations/PubNewsStory.aspx?partner=Mzg0TIRrMU1RPT1QJfKEQ UALSTO&product=MzgwU1ZJPVakWQEQUALSTOEQUALSTO&storyId=76719>

Superconductor Technologies Inc. (December 17 and 23, 2002)

On Dec. 23, Superconductor Technologies Inc. (STI) completed its merger with Conductus, Inc. and closed a related US \$ 20 million equity private placement that was contingent on the merger. The merger was approved by the stockholders of each company at simultaneous stockholder meetings that were held on Dec. 17. Trading of Conductus’ common stock ceased when the NASDAQ market closed on Dec. 17. The new company will retain the STI name; Conductus will become a wholly-owned subsidiary of STI. Under the terms of the agreement, Conductus shareholders were given 0.6 shares of newly issued STI common stock for each outstanding share of Conductus common stock. In addition, 21,096,954 shares of common stock were issued to investors in the private placement at a purchase price of \$0.95 per share. The investors were also given 5-year warrants for the purchase of an additional 5,274,240 shares of common stock at an exercise price of \$1.19 per share.

Source:

“Stockholders of Superconductor Technologies Inc. and Conductus, Inc. Approve Merger”

Superconductor Technologies Inc. Press Release (December 17, 2002)

<http://ir.thomsonfn.com/InvestorRelations/PubNewsStory.aspx?partner=Mzg0TIRrMU1RPT1QJfKEQ UALSTO&product=MzgwU1ZJPVakWQEQUALSTOEQUALSTO&storyId=77904>

“Superconductor Technologies Inc. Completes Merger With Conductus and Closes \$20 Million Private

Placement”

Superconductor Technologies Inc. Press Release (December 23, 2002)

<http://ir.thomsonfn.com/InvestorRelations/PubNewsStory.aspx?partner=Mzg0TIRrMU1RPT1QJfKEQ UALSTO&product=MzgwU1ZJPVakWQEQUALSTOEQUALSTO&storyId=78161>

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