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

Power

American Superconductor Corporation (December 9, 2004)

American Superconductor Corporation (AMSC) has announced the successful commissioning of four industrial power quality systems ordered earlier this year by a major global semiconductor manufacturer. The Power Quality Industrial Voltage Restorer (PQ-IVR(TM)) systems, each rated at 42 MVA, will protect the distribution feeders in a U.S.-based semiconductor fabrication facility. The power quality solutions can detect voltage sags within milliseconds, mitigating problems before they shut down sensitive electronic manufacturing equipment. According to a 2001 Electric Power Research Institute report, such voltage sags and similar power quality problems cost U.S. industry $15-24 billion per year.
Source:
"American Superconductor Reports Successful Commissioning of Industrial Power Quality Solutions at Major U.S. Semiconductor Fabrication Facility"
American Superconductor Corporation (December 9, 2004)
http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle_Print&ID=653170&highlight

Florida State University (December 10, 2004)

Florida State University (FSU) has announced that it will play a major role in identifying new ways to upgrade and modernize Florida's and the United States' power grid, thanks to a US $5 million federal grant. FSU will lead a consortium consisting of other Florida universities, public utilities and industries, which are funded by the U.S. Department of Energy, in a multifaceted effort to understand, improve, safeguard and modernize the state's electric power grid. Steinar Dale, Director of FSU's Center for Advanced Power Systems (CAPS), commented, "With the innumerable changes in technology and the advent of new superconducting materials, electricity can and should be moved more reliably and efficiently for the benefit of all electric consumers." The project will attempt to identify how the power grid can be made more reliable and less vulnerable to events causing power outages, including terrorist attacks. A real-time digital simulator will model the proposed grid modifications to help engineers understand the effect of changes without having to experiment on the actual grid. The project will also include research on superconducting technologies to facilitate more efficient energy transmission.
Source:
"FSU leads charge to modernize America's power grid"
Florida State University press release (December 10, 2004)
http://www.fsu.edu/%7eunicomm/pages/releases/2004_12/release_chrono_0412.html

American Superconductor Corporation (December 14, 2004)

American Superconductor Corporation has doubled the electric performance of its latest HTS wire in strong magnetic fields at relatively high temperatures; this achievement was critical

for incorporating the advanced wire into a range of commercial and military applications, such as high-speed generators and kinetic energy weapons systems. An electrical current of 102 A/cm-width was achieved in 2G wire at 65 K in a magnetic field of 3 T applied perpendicular to the wire's surface. This performance level already represents 88% of the Defense Advanced Research Projects Agency (DARPA)'s 2007 target of 115 A/cm-width at 65 K in a 3T perpendicular magnetic field. The substantial performance improvement was obtained by adding an amount of holmium to the superconductor coating. Under the proper manufacturing conditions, the addition of holmium creates atomic-scale holmium-containing particles, or nanodots, that serve to pin the magnetic lines of force in place in the superconductor, allowing a higher electrical current even in the presence of strong magnetic fields and relatively high operation temperatures. This work is supported by a DARPA contract aimed at military applications. AMSC has also released an updated white paper, "2G HTS Wire Technology: An Assessment," which can be found its home page: http://www.amsuper.com

Source:

"American Superconductor Reports Significant Advance in Second Generation High Temperature Superconductor Wire"

American Superconductor Corporation press release (December 14, 2004)

http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle_Print&ID=654315&highlight

Intermagnetics General Corporation (December 16, 2004)

Intermagnetics General Corporation (IMGC) has signed a definitive agreement to sell its Polycold Systems subsidiary to Helix Technology Corporation for US $49.2 million in cash, plus the assumption of a post-close tax obligation of about $3.3 million. The transaction, which has been approved by both companies' boards of directors, is scheduled to close in mid-February 2005, subject to customary closing conditions including regulatory approval. Glenn H. Epstein, chairman and chief executive officer of Intermagnetics, explained, "… we believe that our shareholders' long-term interests are best served by focusing our resources on our expanded and growing medical devices business. We have strengthened our position in the medical devices marketplace with our acquisitions of Invivo and MRI Devices during 2004. The proceeds from the Polycold sale will enable us to substantially reduce debt associated with those acquisitions and will provide even broader flexibility in considering other strategic initiatives to further grow Intermagnetics." Following the sale of Polycold, Intermagnetics will consist of four businesses: the Magnet Business Group, Invivo Diagnostic Imaging, Invivo Patient Care, and SuperPower, Inc.

Source:

"INTERMAGNETICS TO DIVEST POLYCOLD SUBSIDIARY TO FOCUS ON EXPANDING MEDICAL DEVICES BUSINESS"

Intermagnetics General Corporation press release (December 16, 2004)

http://www.igc.com/news_events/news_events.asp

Intermagnetics General Corporation (December 20, 2004)

Intermagnetics General Corporation (IMGC) has reported its financial results for the second quarter ending November 28, 2004. Net income for the quarter increased by about 75% to US $7.9 million, excluding acquisition and integration-related expenses and certain non-cash items.

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The reported net income for the quarter was $4.1 million. Net sales amounted to $75.2 million, compared to $39.9 million for the same quarter in the previous fiscal year. Magnet system sales accounted for nearly $30 million. Glenn H. Epstein, chairman and chief executive officer of IMGC, commented, “The expected $53 million in overall proceeds from our previously announced sale of Polycold, combined with our accelerating free cash flow, will enable us to substantially pay down acquisition-related debt and dramatically reduce interest expenses. It will also provide us even greater financial flexibility in pursuing strategic initiatives to further grow Intermagnetics." Once the divestiture of Polycold is complete, IMGC will be well positioned in the Medical Device marketplace. IMGC’s new 1.0 T High-Field Open (HFO) magnet was well received at a recent major trade conference and is positioned for substantial growth in 2005. In addition, SuperPower continues to make substantial progress in developing 2G HTS materials and related devices designed to enhance the capacity, reliability and quality of the transmission & distribution of electrical power.
Source:
“Intermagnetics Reports Record Quarterly Performance”
Intermagnetics General Corporation press release (December 20, 2004)
http://www.igc.com/news_events/news_events.asp

NMR

Oxford Instruments Superconductivity (December 15, 2004)

Oxford Instruments Superconductivity (OIS) is manufacturing the world’s first 22.31 T, 950 MHz NMR system for Nuclear Magnetic Resonance (NMR) Spectroscopy. The NMR will be delivered to the NMR Protein Structure Group in Oxford University’s Department of Biochemistry in May 2005 and will be capable of generating the world’s highest commercially available field strength for NMR. A niobium-based superconductor with an enhanced critical current density has been developed for the 950 MHz system by Oxford Superconducting Technology, a sister company of OIS based in New Jersey. The added J_c of the new material will allow UHF NMR systems that do not require their innermost windings to be made from high-temperature superconductors to be developed, allowing a more compact solenoid. OIS has developed the proprietary state-of-the-art coil structure and coil structure reinforcement technologies in parallel with its superconductor development program. Chris Russell, Director at Oxford Instruments Superconductivity, stated, “Our magnet design philosophy incorporates not only the more obvious superconductor J_c properties necessary to generate the required field strength, but also the coil structure reinforcing necessary to provide reliable mechanical integrity under all operating conditions. The installation of the 950 MHz system to the internationally recognized NMR Protein Structure Group at Oxford University will significantly improve resolution and sensitivity, assisting their continued research into the properties proteins associated with cell adhesion and signaling.”
Source:
“Oxford Instruments Superconductivity announces the world’s first 950MHz magnet system for NMR Spectroscopy”
Oxford Instruments Superconductivity press release (December 15, 2004)

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http://www.oxinst.com/SCNNWP745.htm

Communication

Superconductor Technologies Inc. (December 8, 2004)

Superconductor Technologies Inc. (STI) has completed a follow-on purchase agreement for a minimum of US $7.5 million (and possibly over $11 million, depending on the product mix) from a major North American wireless carrier. The agreement extends the term of an existing purchase agreement to the end of 2005, committing the carrier to the purchase of a minimum number of SuperLink ™ and SuperPlex ™ units within that time period. Most of these units will be delivered in 2005. STI has been serving the wireless carrier for over five years.

Source:

“Superconductor Technologies Inc. Receives Follow-On Purchase Commitment From Major North American Wireless Carrier”

Superconductor Technologies Inc. press release (December 8, 2004)

http://phx.corporate-ir.net/staging/phoenix.zhtml?c=70847&p=irol-newsArticle&ID=651986&highlight

Superconductor Technologies Inc. (December 9, 2004)

Superconductor Technologies Inc. (STI) has been chosen by the SETI Institute's Allen Telescope Array Project to supply cryocoolers for use in highly sensitive receivers. The Allen Telescope Array will be one of the world’s most powerful and flexible radio telescopes; in addition to traditional radio astronomy applications, the telescope array is specifically designed to listen for interstellar signals. The project is being supported, in part, by a US $ 11.5 million donation to the SETI Institute from Paul Allen, co-founder of Microsoft. The array of hundreds of 20-foot dish receivers will be built at the Hat Creek Observatory on land operated by the University of California at Berkeley. The financial terms of the deal with STI were not disclosed. Abhijit Karandikar, product manager at STI, commented, "The cryocooler SETI will be using is a slightly modified version of what STI uses in our flagship, SuperLink(TM) Rx, which is used by wireless operators to improve the performance of their networks."

Source:

“SETI Institute's Allen Telescope Array Project Chooses Superconductor Technologies Inc. to Supply Cryocoolers for Use in Highly Sensitive Receivers”

Superconductor Technologies Inc. press release (December 9, 2004)

http://phx.corporate-ir.net/staging/phoenix.zhtml?c=70847&p=irol-newsArticle&ID=653159&highlight

(Akihiko Tsutai, Director, International Affairs Department, ISTEC)

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