

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

Power

American Superconductor Corporation (October 1, 2003)

American Superconductor Corporation announced that the U.S. Department of Defense (DOD) and the U.S. Department of Energy (DOE) have awarded American Superconductor a total of US \$400,000 for the first nine-month phase of a planned two-phase, cost-sharing program for the scale-up of American Superconductor's second-generation (2G) HTS wire manufacturing plant. The second phase of funding is expected to be awarded in 2004, and would provide \$10 million over three years for completion of a 2G HTS manufacturing facility. Commented Dr. Paul Barnes, Superconductivity Team Leader for the U.S. Air Force: "The establishment of a domestic production facility that can produce high quality 2G HTS wire is critical to our national defense. This funding program is designed to help ensure that the U.S. has a reliable supply of 2G HTS wire, which is expected to be central to the development of many future military systems, including lightweight high power generators and advanced weapon systems."

Meanwhile, James Daley, Manager of the Superconductivity Program at the U.S. Department of Energy, explained: "With superconductor technology expected to play an important future role in upgrading the nation's power grid, we are expanding development of important new HTS technologies, such as transmission cables and generators."

American Superconductor will use the funding to support its evaluation of commercial-scale production equipment and systems; the company expects to be producing second-generation HTS wire in commercial quantities in 3-4 years.

Source:

"American Superconductor Receives Additional Funding To Support Manufacturing Scale-up for Second Generation HTS Wire"

American Superconductor Corporation press release (October 1, 2003)

<http://www.amsuper.com/html/newsEvents/news/106784329710.html>

SuperPower, Inc. (October 2, 2003)

SuperPower, Inc., a subsidiary of the Intermagnetics General Corporation, has received the top ranking in a federal review of advanced second-generation HTS wire technology. SuperPower was one of fourteen industrial and national laboratory participants in the U.S. Department of Energy's annual peer review. The top ranking is usually awarded to a national laboratory, since most fundamental research occurs at that level, and it is unusual for a private sector company to receive the top ranking. The progress of SuperPower and the other participants in the peer review was ranked by an independent committee based on performance against previously stated goals, goals for the coming year, and the level of research integration with national laboratory (or industrial) partners. The committee noted that the second-generation HTS technology program at SuperPower was a "world-class project" and a "focused, goal-oriented effort" with a "strong innovative streak fostered by management, leading to strong team effort achieving and exceeding stated (ambitious!) goals." Commented Philip Pellegrino, president of SuperPower, "The strength of our second-generation HTS wire program is that we have a clear roadmap to full-fledged production and we are addressing not

only present-day issues but also those that we anticipate to be critical along the pathway to production." For further details on SuperPower's second-generation HTS wire program, see their website at <http://www.igc.com/superpower/index.htm>.

Sources:

"INTERMAGNETICS RATED NO. 1 FOR 2ND-GENERATION HTS WIRE PROGRAM"

Intermagetics General Corporation press release (October 2, 2003)

http://www.igc.com/news_events/news_story.asp?id=96

"SuperPower Achieves Top Ranking From DOE Peer Review Panel For 2nd-Generation HTS Wire Program"

Intermagetics General Corporation press release (October 2, 2003)

http://www.igc.com/news_events/news_story.asp?id=97

American Superconductor Corporation (October 3, 2003 and November 3, 2003)

American Superconductor Corporation completed a public offering of its common stock at US \$9.50 per share. The offering was completed on November 3, 2003. Net proceeds to the company from the offering, after the exercise of an over-allotment option, were approximately \$51.1 million. These funds will be used for working capital and for general corporate purposes, including the scale-up of the company's pilot manufacturing for second-generation HTS wire.

Source:

"American Superconductor Announces Pricing of Public Offering of \$47,262,500 of Common Stock"
American Superconductor Corporation press release (October 3, 2003)

<http://www.amsuper.com/html/newsEvents/news/106784329718.html>

"American Superconductor Announces Exercise Of Over-Allotment Option for Public Offering"

American Superconductor Corporation press release (November 3, 2003)

<http://www.amsuper.com/html/newsEvents/news/106785329731.html>

Superconductive Components, Inc. (October 6, 2003)

Superconductive Components, Inc. has been awarded a contract from the U.S. Department of Energy for a Phase II Small Business Innovation Research (SBIR) program to determine the feasibility of producing cost-effective, kilometer-length BSCCO 2212 wires for high-field magnets beyond 12 Tesla at 4.2 K. The Phase II SBIR program will focus on customizing the particle size distribution of BSCCO 2212 powders to improve the advanced thermo-mechanical processing of superconductor/ silver wires as well as scaling the process to a commercial level. The initial goal of the program will be the production of 240 A/mm² (4.2 K) wires in one-kilometer lengths. The contract is valued at approximately US \$518,000 and is expected to continue through June 2005. This award is in addition to a \$105,000 award granted earlier this year.

Source:

"Superconductive Components, Inc. Awarded Research Contract by U.S. Department of Energy"
Superconductive Components, Inc. press release (October 6, 2003)

<http://www.targetmaterials.com/ne/news/scci100603energy.htm>

Medical

CardioMag Imaging, Inc. (October 1, 2003)

CardioMag Imaging announced the installation of a CardioMag Imaging™ (CMI™) system in Tianjin, China. The new cardiovascular diagnostic technique, which has been described by physicians as a “totally safe, non-contact, highly sensitive, and non-invasive approach to early diagnosis of heart problems” will be installed at the new Tianjin International Cardiovascular Hospital, a 700-bed facility. Dr. Liu Xiaocheng, a renowned cardiologist and president of the new hospital, believes that CMI’s technology provides a truly revolutionary approach to the diagnosis of heart disorders “better, faster, and less expensively.”

Source:

“CardioMag Imaging™ Brings Novel Heart-Health Scanning™ Device to China”

CardioMag Imaging, Inc. press release (October 1, 2003)

http://www.cardiomag.com/News_and_events/MCG%20in%20China.htm

New York University Medical Center and School of Medicine (October 7, 2003)

The New York University School of Medicine announced that it intends to install a shielded 7-Tesla superconducting MRI machine in its School of Medicine. The system, which will be the most powerful MRI machine in the New York metropolitan area, will be used for research purposes only and is expected to be operational in 2004. Although the MRI machine will be capable of scanning the entire human body, brain research will be the initial focus of the school’s research efforts. Specifically, the MRI machine will be used to obtain detailed information on the metabolic pathways in living brain tissue, improving our understanding of how disease affects the brain’s metabolism. Hopefully, such information will lead to the earlier diagnosis of a variety of diseases, including multiple sclerosis and Alzheimer disease. The high field strength of the magnet will enable the range of detectable to be expanded to include carbon and phosphorus, which are key compounds in the human body. As a result, researchers will be able to distinguish minute amounts of metabolites and neurotransmitters in the brain. By analyzing the molecular signatures of various diseases, clues regarding early treatment may be obtained. The MRI machine will also be used to obtain structural information, such as the location of plaques in brain tissue – a hallmark of Alzheimer disease. The system will be partially paid for by a US \$2 million grant from the National Institutes of Health (NIH).

Source:

“NYU School of Medicine attracts a powerful MRI machine”

New York University Medical Center and School of Medicine press release (October 7, 2003)

http://www.med.nyu.edu/communications/news/pr_27.html

NMR and Sensor

Varian, Inc. (October 16, 2003)

Varian, Inc. announced that researchers in the United States, Europe, and Japan are using a new Cold Probe (-250°C) for proteomics and pharmaceutical research. The Cold Probe, designed for Varian’s 600 MHz NMR systems, enables the system’s sensitivity to be improved by 3-4 times, compared to the sensitivity enabled by a room-temperature probe. This allows results to be achieved

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ten times faster. The Cold Probe is a critical devise that holds the sample within the bore of the NMR spectrometer's magnet, at the center of the magnetic field. The probe contains antennae that irradiate the sample with radio frequency energy and receive very weak return signals that are then analyzed using complex computer software to obtain structural information. The probe is cooled using liquid helium, thereby increasing the available signal and decreasing noise from the system's electronic components. Importantly, the Cold Probe provides a cost-effective alternative to enhancing sensitivity without requiring the purchase of an entirely new NMR system. For example, adding a Cold Probe to an existing 600 MHz system would provide twice the sensitivity of an 800 MHz system at only one-sixth of the cost to the customer.

Source:

"Proteomics, Pharmaceutical Scientists Use Varian, Inc. Cold Probes For 600 MHz NMR Spectrometers"

Varian, Inc. (October 16, 2003)

http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=VARI&script=410&layout=-6&item_id=459255

Communication

Superconductor Technologies Inc. (October 30, 2003)

Superconductor Technologies Inc. announced its third quarter financial results for the quarter ending September 27, 2003. Total net revenues for the third quarter amounted to US \$ 14.2 million, and increase of 26% compared to that of the prior quarter and an increase of 202% compared to that for the third quarter of fiscal 2002. Net commercial product revenues amounted to US \$11.6 million, an increase of 30% compared to that of the prior quarter and an increase of 170% compared to that for the third quarter of fiscal 2002. Government and other contract revenue accounted for \$2.6 million in the third quarter, compared to \$429,000 for the third quarter of fiscal 2002. A larger portion of this increase was attributed to the acquisition of Conductus last December. Total net loss for the quarter amounted to \$851,000. Commented M. Peter Thomas, president and chief executive officer of STI, "In the third quarter we signed our fourth GPA with a major U.S. wireless carrier and received initial orders. The third quarter tends to be seasonally slow as to new orders. Our backlog stands at \$2.0 million at the end of the quarter. We however, have already seen a pick up in orders in the fourth quarter. We expect this momentum to continue to build, resulting in strong growth in our orders for the fourth quarter, which should translate into a strong entry into 2004."

Source:

"Superconductor Technologies Inc. Announces Third Quarter Results"

Superconductor Technologies Inc. press release (October 30, 2003)

<http://ir.thomsonfn.com/InvestorRelations/PubNewsStory.aspx?partner=5951&storyId=97717>

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