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Subject: Tech Briefs INSIDER 12/09/08
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In this edition, sponsored by Technical Manufacturing Corp., Kepco, and Protomold:

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BONE IMPLANT

A method to produce synthetic bone, using techniques to make vehicle catalytic converters, is being developed by researchers at the University of Warwick. The technique involves a state-of-the-art extrusion of the implant material through a mold, to produce a three-dimensional honeycomb texture with uniform pores. The material can then be sculpted by the surgeon. After implantation, bone cells will be transported into the implant and begin forming new bone.

The material's increased strength allows it to be used in spinal surgery, or

in revision hip and knee operations where currently non-degradable materials such as titanium or steel may be used. The advantage of increased and interconnected porosity is that the implant can quickly be filled with blood vessels, speeding healing.

According to researcher Dr. Kajal Mallick, "We found that we were able to use calcium phosphates - a family of bioceramics that are routinely used in bone implant operations. By using this technique, we were able to significantly improve both the strength and porosity of the implant."

Visit <http://link.abpi.net/l.php?20081209A2> to learn more.

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TECHS OF THE WEEK

A technology allows transmitting files over a network in a completely undetectable manner, non-traceable, invisible to all tracing methods, invisible to packet analyzers, and protocol analyzers. It can be used in point-to-point, multipoint and broadcast modes. The technology, which can be implemented via hardware or software, ensures complete file content secrecy.

<http://link.abpi.net/l.php?20081209A4>

A solid state lighting technology enables the use of LED lights in cost-sensitive applications where LED cooling is needed. One limitation of LEDs has been cooling them when used in continuous-duty commercial applications. Current cooling technologies are cost-prohibitive for industrial lighting. This patent-pending solution should advance the penetration of LED designs into commercial and industrial lighting.

<http://link.abpi.net/l.php?20081209A5>

The Technologies of the Week describe inventions offered for license through the yet2.com marketplace. Visit their site at

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CURRENT ATTRACTIONS

In March 2008, astronaut Garrett Reisman flew aboard the Space Shuttle Endeavour to the International Space Station, where he spent 95 days living and working in space before returning to Earth in June aboard the Space Shuttle Discovery. Reisman originally applied to become an astronaut when in grad school at CalTech, but did not get selected until he was working at TRW as a spacecraft guidance navigation and control engineer.

During his 95 days in space, Reisman performed his first spacewalk to help install the Space Station's new robotic manipulator, called Dextre. According to Reisman, the shuttle crew needed to resolve problems with a power feed and stuck bolts to get Dextre working properly.

To read more of the interview with Garrett Reisman, see page 12 of December's NASA Tech Briefs, or go to <http://link.abpi.net/l.php?20081209A8>.

ADVANCING FUSION

Researchers at MIT's Alcator C-Mod fusion reactor are trying to make the promise of fusion as a future power source closer to reality. Physicist Yijun Lin and principal research scientist John Rice are demonstrating a method to use radio frequency waves to circulate hot plasma inside the reactor chamber, thus controlling heat loss and making for more efficient nuclear fusion.

"That's very important," said physicist Earl Marmor, division head of the Alcator Project at the MIT Plasma Science and Fusion Center (PSFC). According to Marmor, present techniques to push the plasma will not work in higher-power reactors such as the planned ITER (International Thermonuclear Experimental Reactor) now under construction in France, so new methods must be found. The Alcator C-Mod reactor, in operation since 1993, has the highest magnetic field and highest plasma pressure of any fusion reactor in the world.

Learn more at <http://link.abpi.net/1.php?20081209A9>.

QUESTION OF THE WEEK

Last week's question concerned Internet usage. AT&T began an experiment to limit the amount of data subscribers can use each month. Users of their slowest DSL service (768 kilobits/sec.) in Reno, NV, were limited to downloading a maximum of 20GB per month. Customers using their faster, 10 megabits/sec. service were restricted to 150 GB per month. AT&T said the experiment was intended to curb the so-called "bandwidth hogs," the 5 percent of AT&T subscribers who routinely consume 50 percent of system capacity. We asked if Internet service providers should limit the amount of downloadable data. Thirty-two percent of you said yes and 68 percent said no.

Here's more of what you had to say:

"Limit the amount of data, NO. Limit the speed only when they hog the pipeline. A low usage client should not be speed restricted, but a bandwidth hog should be throttled down, but not data limited when the network is overloaded." Bob

"I see the issue as one comparable to cell phone useage. The ISP should determine a maximum reasonable monthly download allowance. If you go over that limit, you pay extra. If you don't, then the unused gigabytes "rollover" to the next month. Then, the ISPs can compete with each other by offering more gig per month or a lower rate or some other creative means of marketing." Chris

"It is all about MONEY and monopolistic control. The goal is to squeeze as much out of the market while delivering the minimum amount of service without triggering outrage in the user base and FCC or Congressional response. There is no sense in making higher limits for higher bandwidth users, other than to push smaller users to more expensive capability." Craig

This week's question regards the future of the U.S. auto industry. Congress is considering a \$15 billion package of bridge loans and credit lines to help General Motors, Ford, and Chrysler recover from the financial crisis.

Domestic

automakers have together requested \$34 billion, contending the higher amount

is required to maintain operations and avoid possible bankruptcy. Critics argue the automakers have failed to provide sufficient evidence they would wisely spend bailout funds. What do you think? Should Congress bail out domestic automakers? Yes or no? Submit your answer and post your comments at:

[http://link.abpi.net/l.php?20081209A10.](http://link.abpi.net/l.php?20081209A10)

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- Spencer Chin, Senior Editor

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