

FOR IMMEDIATE RELEASE
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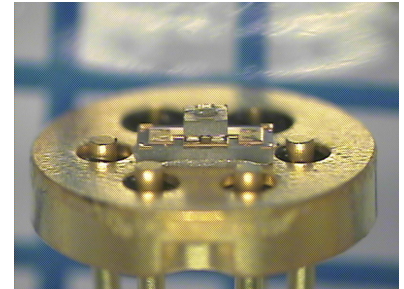
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Nextreme awarded US Patent for “Phonon-Blocking, Electron-Transmitting Low-Dimensional Structures” – a technology that enhances cooling and energy conversion efficiency...

NEXTREME AWARDED SEMINAL PATENT IN NANOTECHNOLOGY TO BOOST EFFICIENCY OF THERMOELECTRICS

DURHAM, N.C. (March 27, 2008) — Nextreme Thermal Solutions™, the leader in microscale thermal and power management products for the optoelectronic and electronics industries, announced that it has been awarded US Patent 7,342,169 for “Phonon-Blocking, Electron-Transmitting Low-Dimensional Structures”, a technology that has the potential to significantly impact energy conservation and thermal management – two major drivers in the world economy today. Nextreme’s newest patent represents the culmination of pioneering work carried out by RTI International more than seven years ago in the area of nano-structured thermoelectric materials. Nextreme acquired all of RTI’s intellectual property in thermoelectric materials and devices in 2004.



Cooling of a laser diode in a TO-56 package using the Nextreme OptoCooler™ module that employs thin-film thermoelectric materials

Thermoelectrics are used to convert waste heat into electrical power, and also for cooling electronics. Numerous researchers in North America have reported significantly enhanced efficiencies in thermoelectrics using nano-structured materials. This includes pioneering work on superlattices at RTI International and MIT that started in the 1990’s and more recently at MIT and Boston College using nano-particles.

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The nano-approach uses a commonly available thermoelectric material called Bismuth Telluride, constructed on a nanoscale, to create a structure that researchers believe blocks the transmission of phonons, which carry heat, and enhances the transmission of electrons, which carry electrical energy. The result is a radical boost in material properties with reports of 40% to 140% improvement in efficiency.

“This patent award is the culmination of years of research from a pioneer in the field of thermoelectrics,” said Dr. Seri Lee, Chief Technology Officer at Nextreme. “Nano-structured materials hold great promise for significantly enhanced cooling and energy conversion performance.”

Nextreme has already revolutionized the use of thin-film thermoelectrics in the electronics industry by integrating thermoelectric materials into commonly used electrical interconnects called copper pillar bumps to create a thermal bump. This approach has provided a scalable and inexpensive pathway for integrating thermal management functionality directly into electronic packaging and has enabled Nextreme’s OptoCooler™ module, the world’s smallest thermoelectric cooler and the industry’s first device, to offer a heat pumping density in excess of 70 W/cm².

For more information, contact Nextreme at 3908 Patriot Dr., Suite 140, Durham, NC 27703-8031; call (919)-597-7300; e-mail info@nextreme.com; or go to www.nextreme.com.

About Nextreme Thermal Solutions, Inc.

Nextreme designs and manufactures microscale thermal and power management products for the semiconductor, photonics, consumer, automotive and defense/aerospace industries. The company has embedded cooling, temperature control and power generation capabilities into the widely accepted copper pillar bumping process used in high-volume electronic packaging. Nextreme’s breakthrough addresses the most challenging thermal and power management constraints in electronics today, and delivers the only fully-scalable technology solution by leveraging the existing, high-volume flip chip manufacturing infrastructure. By minimizing the need for manufacturing changes and focusing on developing a seamless design-in solution, Nextreme will change the future of thermal and power management for the entire electronics industry.

Nextreme is managed by an experienced start-up team and world-renowned experts in electronic packaging, thermal management and pillar bump technology. The company has 38 employees and is based in Research Triangle Park, North Carolina.

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