



## HIGH HEAT FLUX REMOVAL FOR LARGE AREA COOLING

Advanced designs of high power electrical devices such as advanced lasers, radars, and electric vehicles are limited by the need to maintain the operating temperatures of the critical elements, such as the power electronics, below critical levels. To do this, researchers are constantly exploring ways to remove ever larger amounts of heat from the devices. A common method of extracting large amounts of heat from a surface is to use a fluid that is directed against the surface to be cooled.

The fluid used in some advanced cooling designs is removed at the edges of the surface being cooled to be re-cycled. One of the problems in such designs is to remove the coolant as quickly as possible in order to maintain a large temperature difference between the coolant and the hot surface.

A new approach to this problem has resulted in very high heat removal rates from large areas. Heat removal rates approaching 1000 Watts per square centimeter are possible using this new technology.

For more information contact **MARK SWANEY**  
<mailto:mswaney@uark.edu> or 479-575-7243  
<http://www.uark.edu/ua/techip>  
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