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## **Kyma Technologies Announces Cooperative Research and Development Agreement with United States Air Force Research Laboratories**

**CRADA to focus on gallium nitride materials characterization and device development for RF electronic applications.**

Raleigh, NC / August 7, 2006 - Kyma Technologies, Inc. has signed a cooperative research and development agreement (CRADA) with the U.S. Air Force Research Laboratory (AFRL) to further understand how low defect density native gallium nitride (GaN) substrates might positively impact GaN field effect transistor (FET) device performance and reliability. The AFRL program manager for the CRADA is Mr. John Blevins, while Dr. Drew Hanser is the technical lead for Kyma Technologies.

The focus of the CRADA is to perform advanced characterization analyses of native GaN materials and native GaN based FET devices.

Because native GaN substrates are only now becoming available, past efforts to develop high performance GaN FET devices have relied heavily on silicon carbide (SiC) substrate technology. While use of SiC substrates has led to excellent device performance demonstrations by several groups, persisting problems with device reliability must be solved before GaN FETs can be inserted into military systems. Such device reliability problems are considered by many to have roots in poor device layer materials characteristics which arise when a foreign (i.e., non-native GaN) substrate such as SiC is used. Native GaN substrates have the clear potential to solve this fundamental problem.

“We believe that native GaN substrates are a potential enabling technology for realization of ultra-high performance and reliability high-power high-frequency transistors needed for next generation DoD and commercial RF applications. However, much work in materials and device characterization is needed to get there and we are very pleased to be working with a top research group like AFRL to jointly attack the underlying challenges,” said Dr. Hanser.

Dr. Keith Evans, Kyma’s president and CEO added, “The AFRL team has a long and highly successful history of driving innovation in advanced materials and devices. We look forward to working closely with AFRL scientists to accelerate our understanding of what it takes to build a reliable high performance RF FET in the GaN materials system. The improved understanding that we hope to reach under this CRADA has the potential not only to positively impact RF FET applications but additionally can be leveraged across a broad range of other device applications of import to both the military and the commercial sectors.”

## **About Kyma Technologies**

Kyma Technologies is based in Raleigh, North Carolina and was spun out of North Carolina State University in 1998. Kyma has developed a patent-protected high-rate process for cost-effective manufacturing of boules of native single-crystal gallium nitride from which native single-crystal gallium nitride substrates are sliced and polished. Native GaN substrates are expected to enable advances in cost, performance, and reliability of several different nitride semiconductor devices which will be useful for a broad range of commercial markets and applications including power switching electronics, high power radio-frequency electronics, solid state lighting, optical storage, bioagent and chemical sensing, and ultraviolet light detection. According to Strategies Unlimited, the market for nitride semiconductor devices will reach \$7.2B by 2009.

For more information about Kyma Technologies, please visit our website [www.kymatech.com](http://www.kymatech.com), send us e-mail at [info@kymatech.com](mailto:info@kymatech.com), or call the company directly at 919.789.8880.

## **About the Air Force Research Laboratory**

The Air Force Research Laboratory was founded more than 80 years ago and its mission is to lead the discovery, development, and integration of affordable warfighting technologies for the U.S. air and space force.

For more information about AFRL, visit <http://www.afrl.af.mil> or call the AFRL Public Affairs Office at (937) 257-1110 DSN: 787.