

## **ACME's New Microgravity SiC Devices Outperform Traditional Premium Grade Devices in Initial Testing**

*ACME Advanced Materials has named an independent research team to investigate the superior performance of devices built on 4" SiC substrates processed in microgravity.*

Albuquerque, NM ([PRWEB](#)) September 01, 2015 -- ACME Advanced Materials, Inc. today announced they have partnered with two of the world's leading SiC research groups to independently evaluate and assess the performance enhancement from devices fabricated on their microgravity processed SiC substrates (S Grade). When compared to devices made on traditional Prime Grade substrates, ACME's initial tests showed that the S Grade devices had

- Improved electronic transport
- Lower on-resistance
- Reduced forward voltage
- Higher current density threshold
- Increased reliability

In order to provide independent verification of these results and develop a deeper understanding of the microgravity process itself, ACME has partnered with Dr. Debbie G. Senesky who runs the EXtreme Environment Microsystems Laboratory (XLab) at Stanford University and Dr. Michael Dudley, Chairman of the Dept. of Materials Science & Engineering at Stony Brook University. Dr. Senesky's group has been working with ACME since Jan 2015 to analyze S Grade substrate material properties and build Schottky diode test devices on S Grade substrates. Dr Dudley joined the team in July and his group will bring additional evaluation tools and expertise to the analysis.

"We're really excited about partnering with such well-respected and talented groups to provide new insights and independent analysis of our results," said ACME's President & CEO Rich Glover, "The typical reaction we get from industry when they see our results is, 'No way, this can't be true.' So, we decided to partner with experts that are well known in the Power Electronics Field and let them perform their own independent analysis." The initial, first generation device improvements using ACME S grade SiC material will include:

- Superior MOSFET, transistor & diode avalanche energy clamping capability
- Vastly improved device in-rush current carrying capacity
- Faster allowable switching dV/dt for converters
- Improved short circuit survivability

"We've conducted detailed preflight and post flight analysis on these substrates and observe compelling modifications to the material structure," said Dr. Senesky, "The devices we've built on S Grade substrates also show improved electrical performance when compared to devices built on traditional, unprocessed substrates. My team is digging into these results and we plan to start publishing and sharing the results soon." Dr. Senesky added, "These results are quite intriguing and we're looking forward to working with Dr. Dudley and applying his unique expertise in SiC microstructure to perform additional analysis."

According to Dr. Dudley, "These results are really quite interesting and I'm looking forward to working with ACME and Dr. Senesky to evaluate and assess this S Grade material."

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#### About ACME Advanced Materials, Inc

ACME Advanced Materials, Inc. (A2M) was formed to exploit breakthrough technology that was developed and demonstrated by Masterson Industries, LLC. The Masterson merger with A2M was completed on January 27, 2014 and A2M is the sole surviving entity. A2M is the parent company to a family of wholly owned subsidiaries with each subsidiary established to further develop and commercialize unique A2M technologies. A2M is a privately owned corporation supported by funding from both US and International venture groups.

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#### About Stanford's EXtreme Environment Microsystems Laboratory (XLab)

The XLab is a part of the Aeronautics and Astronautics Department at Stanford University and is focused on the development of micro- and nano-systems for operation within extreme harsh environments. Researchers are investigating the synthesis of temperature tolerant, chemically resistant and radiation-hardened wide bandgap semiconductor (SiC and GaN) thin films and nanostructures, which will serve as a platform for new sensor, actuator and electronic components that can operate and collect data under the most hostile conditions. XLab research supports a variety of applications including deep space systems, hypersonic aircrafts, combustion monitoring and subsurface monitoring.

#### About Materials & Science Engineering (MSE) at Stony Brook University

The Stony Brook University Materials Science and Engineering Department was recently ranked among the top 25 Materials Science and Engineering (MSE) Departments in the Nation by the National Research Council. MSE strengths include the quality, depth and diversity of research programs, and well accomplished faculty which have won a number of national and international distinctions, including a National Medal of Technology and two memberships in the National Academy of Engineering. MSE has also been home to two NSF funded Materials Research Science and Engineering Centers and currently is home to an Energy Frontiers Research Center (EFRC) funded by the Department of Energy. The Department has active collaborations collaborates with international universities and institutions ranging from the European Synchrotron Radiation Facility in Grenoble France, to universities and Institutes in Australia, Germany, New Zealand, Spain, Sweden, Japan, Korea and Canada.



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