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## Aegis Nanogenesis division wins DARPA SBIR Phase II for solar cell research

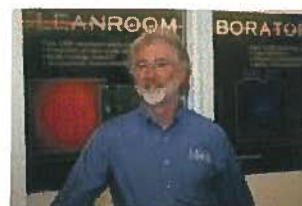
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By **Mike Kelley, 42 staff**

HUNTSVILLE, Alabama – Nanogenesis, a Division of Aegis Technologies Group in Research Park, has won a Small Business Innovative Research (SBIR) Phase II Solar Energy Award that will allow it to continue research on more efficient solar cells that enhance ability to provide electric power.

The SBIR proposal, titled Photonic Band Gap Structures for Solar Energy Generation, secured a \$375,000 award from the Defense Advanced Research Projects Agency (DARPA) which will fund continued research by Nanogenesis to develop solar cells with higher efficiencies than current photovoltaic (PV) devices, said Dr. Milan Buncick, Nanotechnology Chief Scientist.



Dr. Milan Buncick,  
Nanogenesis Chief  
Scientist

The technology involves the use of nanostructures that greatly enhance the concentration of light within a solar cell. By combining the nanostructures with multi-junction cells that accept light from the entire solar spectrum, Nanogenesis seeks to develop more efficient solar panels that could deliver higher power output, according to Dr. Buncick.

"Our objective is to design a cavity that enhances the photon concentration at the junction to increase the efficiency of solar cells," he explained. The research, said Dr. Buncick, incorporates pattern metals that induce plasmons in the metals to further increase the light concentration at the junction, resulting in a more efficient solar cell.

The resulting cells could be built using thin-film technology that provides a low-cost and highly efficient solar energy source. Aegis will model, design, and test these wideband PV devices with plasmonic content.

Buncick said the flexible and highly efficient solar cells would have many applications. "We could actually produce solar panels that could be rolled up and transported to remote locations," he said.

The Army could use these flexible and low-cost power sources to provide electric power in remote battlefield areas, relieving soldiers of the need to carry heavy batteries to power radios, night vision goggles, and

navigation gear. Buncick also sees FEMA applications for the solar panels to provide electric power in disaster areas.

"You could make these inexpensively in areas where there is no established grid for power transport," he said.

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