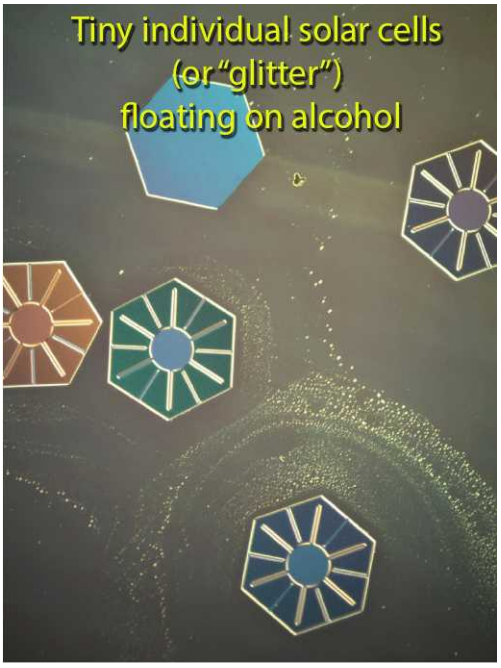
Sandia LDRD Researcher Named "Top 10" by Popular Science Magazine

Citing his accomplishments in microsystem-enabled photovoltaics (MEPV), *Popular Science Magazine* has named Greg Nielson one of its brilliant-ten, one of ten young (under 40) scientists most likely to have major impacts.

In turn, Nielson credits the LDRD Program for his success: "Without the LDRD Program, we wouldn't be where we're at," he says.

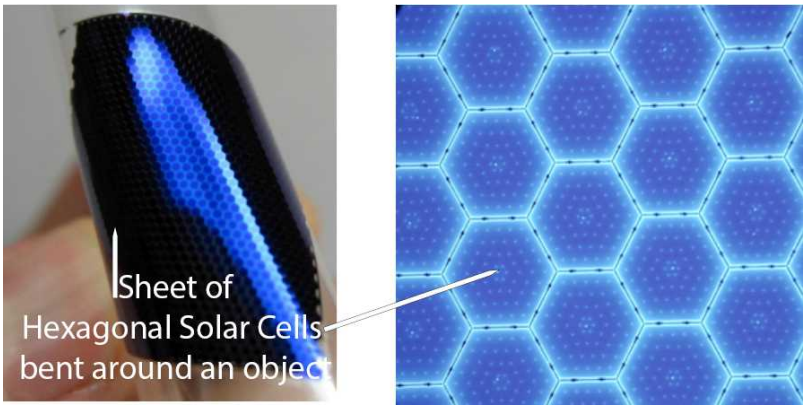


Watch a 20-second video of Greg

Sometimes referred to as "Solar Glitter," Greg's team has employed microsystems fabrication techniques to engineer solar photovoltaic (PV) cells about 250 microns in diameter (about the width of two or three human hairs) and a mere 15 microns (or less) in thickness (about one-tenth the thickness of a single human hair). The outcome of that project were PVs of better than 12% efficiency.

In a current LDRD project, the team is engineering the cells into systems. Because of their thinness, the cells are quite flexible. This allows them to be mounted on flexible material, which can then be conformally bent to fit irregular surfaces. This gives the solar systems numerous potential applications in military, defense, and space systems.

In terms of applications to commercial and consumer PV, the systems composed of thousands of individual cells per square meter are more robust, to a large extent because they can be interconnected in an electrical network configuration, rather than simply in series as in the case of current PV technology. This means that "opens"—broken connections—that might completely inactivate a PV panel of current technology would be very well tolerated by MEPV panels, degrading their performance by a few percent or less. Watch an interview with Greg Nielson



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