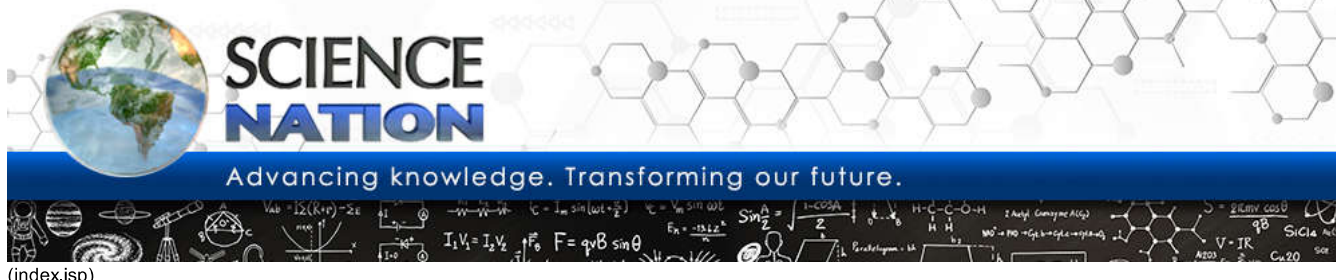




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September 14, 2015

## QESST for solar power to feed an energy hungry world

Quantum Energy and Sustainable Solar Technologies (QESST) Center tackles the 'terawatt challenge,' looking for game changers in photovoltaics

Modern society is very much defined by its access to electricity. What if researchers could advance sustainable energy technologies to the point where everyone around the world had access to clean, cheap energy sources? Richard Smalley, 1996 Nobel Prize winning chemist, called it the greatest challenge facing the world in the 21<sup>st</sup> century and coined the phrase 'terawatt challenge ([/cgi-bin/good-bye?http://cohesion.rice.edu/NaturalSciences/Smalley/emplibary/120204%20MRS%20Boston.pdf](#)).'

Researchers at the [Quantum Energy and Sustainable Solar Technologies \(QESST\) Center \(/cgi-bin/good-bye?http://gesst.asu.edu/\)](#) are hoping to meet much of the terawatt challenge with solar technology alone by vastly improving the performance of photovoltaic cells. QESST is an engineering research center supported by the National Science Foundation (NSF) and the Department of Energy. Nearly a dozen universities participate in the center's research. The center's headquarters are at Arizona State University.

The research in this episode is funded by NSF grant [#1041895 \(/awardsearch/showAward?AWD\\_ID=1041895&HistoricalAwards=false\)](#). NSF Engineering Research Center for Quantum Energy and Sustainable Solar Technologies: QESST at Arizona State University.

[Miles O'Brien \(producers/obrien.jsp\)](#), Science Nation Correspondent

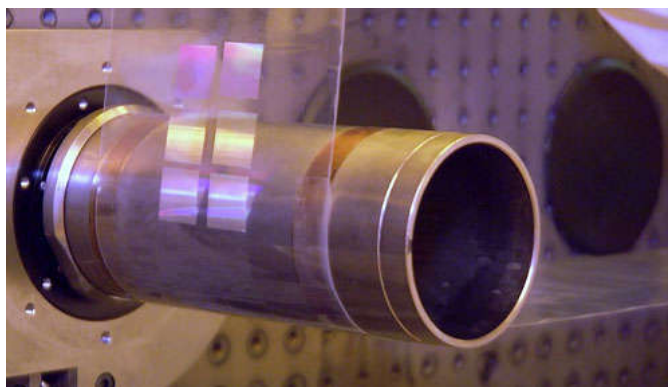
[Marsha Walton \(producers/walton.jsp\)](#), Science Nation Producer

## Related Multimedia



With NSF support, California Institute of Technology (Caltech) chemical engineer Sossina Haile and University of Minnesota mechanical engineer Jane Davidson are working to expand the nation's renewable energy storage capacity. Their mission is to put the heat of the sun to work creating renewable fuels from sources that don't need to be drilled out of the ground. Find out more in this [Science Nation video \(/news/special\\_reports/science\\_nation/solarpower.jsp\)](#).

*Credit: Science Nation, National Science Foundation*



There's no shortage of ideas about how to use nanotechnology, but one of the major hurdles is how to manufacture some of the new products on a large scale. With NSF support, University of Massachusetts (UMass) Amherst chemical engineer Jim Watkins and his team are working to make nanotechnology more practical for industrial-scale manufacturing. One of their projects at the NSF Center for Hierarchical Manufacturing (CHM) is a roll-to-roll process for nanotechnology that is similar to what is used in traditional manufacturing. Find out more in this [Science Nation video \(/news/special\\_reports/science\\_nation/nanomanufacturing.jsp\)](#).

*Credit: Science Nation, National Science Foundation*

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