

NREL's Sarah Kurtz Wins Prestigious Cherry Award from IEEE

National Renewable Energy Laboratory

A physicist from the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) who helped launch super-efficient multi-junction solar cells and who is a leader in photovoltaic (PV) systems reliability has been awarded the prestigious Cherry Award by the Institute of Electrical and Electronics Engineers (IEEE).

Sarah Kurtz, a principal scientist and group manager at NREL, received the award at the IEEE's annual Photovoltaic Specialists Conference in Austin, Texas, this week.

Kurtz and NREL colleague Jerry Olson championed the early use of multi-junction solar cells by showing that a top cell of gallium indium phosphide (GaInP) and a bottom cell of gallium arsenide (GaAs) can capture and convert photons more efficiently into electricity than previous attempts at using other materials.

They showed that the multi-junction concentrator cells not only use a fraction of the precious electronic materials used by the thicker flat plate cells, but that they can capture more light through the course of a day. Olson won the Cherry Award in 2011. (View video of Kurtz and Olson speaking of their breakthroughs.

<http://www.nrel.gov/news/press/2007/502.html>) [1]

Their breakthrough was embraced by NASA, which uses multi-junction solar cells based on this invention to power most space satellites, as well as the Mars rovers, Spirit and Opportunity.

Kurtz's work helped illuminate how to grow high-quality cells, how to measure multi-junction cells, and how their performance is affected under various spectra. More recently, she has looked at reliability issues of integrating multi-junction cells and solar PV in general into larger systems.

"The question on the street — how to predict the lifetime of modules — comes in different flavors," Kurtz said during a break in the Austin conference. "They come from people who are determining the warranties, customers who want to choose the most durable product, the investor trying to justify the investment of a billion dollars, and the insurance companies wanting to know how to set rates. Service predictions, by site around the world, looking 20 or 30 years out, are quite challenging experiments to design.

"To win the Cherry Award is a deep honor," Kurtz said. "A lot of people who are very deserving have been nominated, so I feel very honored."

Kurtz also conducted groundbreaking work on dilute nitrides and on measuring the individual junctions of a series of connected solar cells. At the award ceremony,

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Published on Chem.Info (<http://www.chem.info>)

presenters said, "She has proven to the world high efficiency PV can be done."

Last year, she helped form the International PV Quality Assurance Task Force to develop comparative test standards for PV modules. She is recognized worldwide as an expert on Concentrating PV technology and has received numerous awards both as an individual and as part of a team.

"Sarah's contributions to solar science and technology research can't be overstated," NREL's Director, Dr. Dan Arvizu said. "NREL is proud to have two consecutive winners of the Cherry Award, and four altogether, for one of the most important awards in the photovoltaic field. Sarah's impact on solar energy has been profound, and it's wonderful to see her recognized."

The Cherry Award is named in honor of William R. Cherry, a founder of the photovoltaic community. In the 1950s, he was instrumental in establishing solar cells as the ideal power source for space satellites and for recognizing, advocating, and nurturing the use of photovoltaic systems for terrestrial applications. The William R. Cherry award was instituted in 1980, shortly after his death. The purpose of the award is to recognize individual engineers or scientists who devoted a part of their professional life to the advancement of the science and technology of photovoltaic energy conversion.

NREL is the U.S. Department of Energy's primary national laboratory for renewable energy and energy efficiency research and development. NREL is operated for DOE by The Alliance for Sustainable Energy, LLC.

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