

Technology could bring high-end solar to the masses

July 25 2013, by Sarah Yang

Engineers at the University of California, Berkeley, have developed an inexpensive new way to grow thin films of a material prized in the semiconductor and photovoltaic industries, an achievement that could bring high-end solar cells within reach of consumer pocketbooks.

The work, led by Ali Javey, UC Berkeley associate professor of electrical engineering and computer sciences, is described in a paper published today (Wednesday, July 24) in *Scientific Reports*, Nature's peer-reviewed open access journal.

"Performance is everything in the solar cell industry, but performance at a reasonable cost is key," said Javey, who is also a faculty scientist at the Lawrence Berkeley National Laboratory. "The techniques we are reporting here should be a game-changer for III-V [solar cells](#), as well as for LEDs."

Top of the line [photovoltaics](#) are made from a class of material known as III-V (pronounced "three-five") compounds, known for their superior efficiency at converting light into power. However, the complex manufacturing requirements for III-V materials make them up to 10 times more expensive than silicon, limiting their use to military applications and NASA satellites, the researchers said.

The UC Berkeley researchers demonstrated that [indium phosphide](#), a III-V compound, could be grown on thin sheets of metal foil in a process that is faster and cheaper than traditional methods, yet still comparable

in opto-electronic characteristics.

The paper's co-lead authors from Javey's lab are Rehan Kapadia, a recent Ph.D. graduate, and Zhibin Yu, a post-doctoral researcher.

More information: [www.nature.com/srep/2013/13072 ...
/full/srep02275.html](http://www.nature.com/srep/2013/13072.../full/srep02275.html)

Provided by University of California - Berkeley

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