

Interest in tandem solar cells heats up

June 13 2018

For decades, silicon solar cells have been used to convert energy from sunlight into electricity. However, recent improvements in perovskite alternatives are moving tandem devices—made of both silicon and perovskite—closer to market, according to an article in *Chemical & Engineering News (C&EN)*, the weekly news magazine of the American Chemical Society.

Perovskite [solar cells](#) contain a thin film of materials, such as methylammonium lead iodide, that is cheap and easily processed. But until recently, perovskite cells were very unstable and degraded rapidly upon exposure to air and moisture. Since the cells' introduction in 2009, much progress has been made in improving their efficiency and longevity and in partnering them with silicon in tandem devices, writes contributing editor Mark Peplow.

Today's best stand-alone [perovskite solar cells](#) boast an efficiency (22.7 percent) similar to that of commercial silicon modules, and they function for hours under harsh test conditions. This is compared with an efficiency of 3.8 percent and a longevity of only minutes in 2009. Researchers achieved these improvements by tinkering with the composition of the materials and by encapsulating the cells in protective coatings. Combining perovskite with silicon delivers more power than either could alone, with an efficiency of up to 26.4 percent so far for lab devices. Some experts believe that this efficiency will soon approach 30 percent, which could bring [tandem solar cells](#) to market as early as 2020.

More information: "Perovskite progress pushes tandem solar cells

closer to market," [cen.acs.org/energy/solar-power ... -tandem-solar/96/i24](https://cen.acs.org/energy/solar-power...-tandem-solar/96/i24)

Provided by American Chemical Society

Citation: Interest in tandem solar cells heats up (2018, June 13) retrieved 20 March 2024 from <https://phys.org/news/2018-06-tandem-solar-cells.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--