Solar cell with world's highest conversion efficiency of 37.7% sets new record with triple-junction compound solar cell

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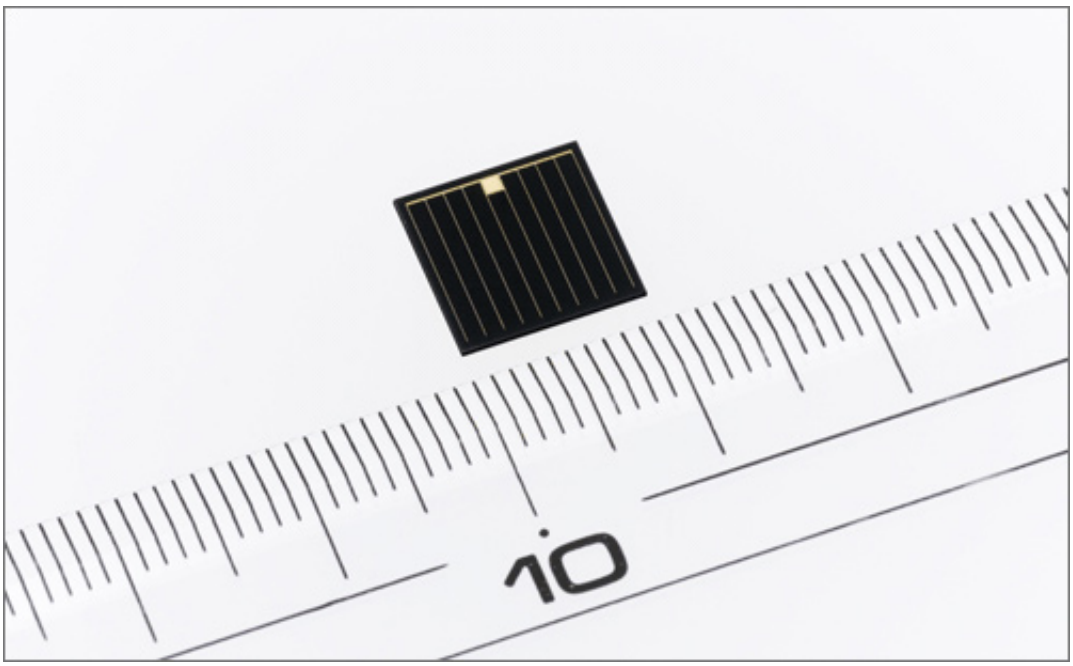
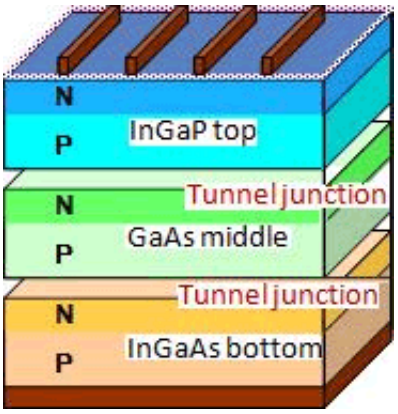


Triple-junction compound solar cell with the world's highest conversion efficiency of 37.7%.

Sharp Corporation has achieved the world's highest solar cell conversion efficiency of 37.7% using a triple-junction compound solar cell in which three photo-absorption layers are stacked together.

Sharp achieved this latest breakthrough as a result of a research and

development initiative promoted by Japan's New Energy and Industrial Technology Development Organization (NEDO) on the theme of "R&D on Innovative Solar Cells." Measurement of the value of 37.7%, which sets a new record for the world's highest conversion efficiency, was confirmed at the National Institute of Advanced Industrial Science and Technology (AIST).

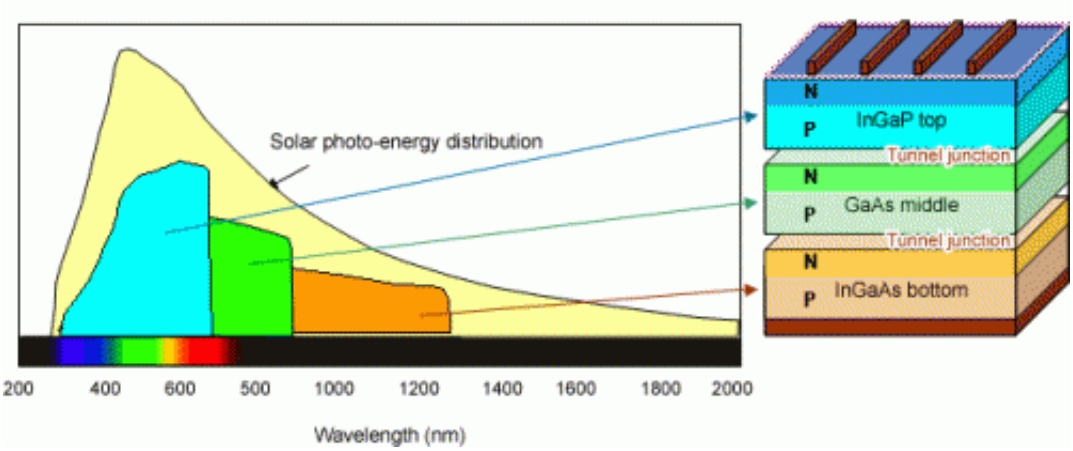


InGaP: Indium Gallium Phosphide; GaAs: Gallium Arsenide; InGaAs: Indium Gallium Arsenide; Tunnel junction: Semiconductor junction where electricity flows as if through metal.

Compound solar cells utilize photo-absorption layers made from compounds consisting of two or more elements, such as indium and gallium. The basic structure of this latest triple-junction compound solar cell uses proprietary Sharp technology that enables efficient stacking of the three photo-absorption layers, with InGaAs (indium gallium arsenide) as the bottom layer.

To achieve this latest increase in conversion efficiency, Sharp capitalized on the ability of the new cell to efficiently absorb light from different wavelengths in sunlight and convert it into electricity. Sharp

also increased the active area for converting light into electricity through optimal processing of the cell edges. These improvements led to higher maximum output levels for the solar cell and enabled Sharp to achieve a solar cell conversion efficiency of 37.7%—the highest in the world.



Sharp's aim for the future is to apply this latest development success to concentrator photovoltaic power systems that use lenses to collect and convert sunlight into electricity. The company also foresees numerous other practical applications for the cells, such as on space satellites and vehicles.

Provided by Sharp