

Video: Artificial leaves to produce fuel on Earth and, one day, Mars

25 January 2018, by Robert Sanders

Call it "liquid sunlight." With the right technology, the gas station of the future will make its own fuel directly from sunlight, in the process sucking up carbon and producing oxygen.

Decades into the future, the same technology could provide fuel and oxygen for the first Martians, and could even be tweaked to produce fertilizer.

Peidong Yang is at work on such technology, what he refers to as [artificial photosynthesis](#). A UC Berkeley professor of chemistry and Berkeley Lab researcher, Yang and his colleagues have already produced new classes of [semiconductor materials](#) to efficiently capture sunlight for this process, and new types of catalysts to promote the chemical reactions.

His team recently reached a milestone, demonstrating a process in which sunlight shines into a water solution bubbled with carbon dioxide to produce chemical fuels, polymers and, under some conditions, even pharmaceutical intermediates to make drugs. The prototype system converts solar to chemical energy at a higher efficiency than nature.

An inorganic chemist and nanotechnologist, Yang discussed the promise of artificial photosynthesis last year at Cal Future Forum, demonstrating how Berkeley is leading the way in created sustainable and renewable sources of energy to wean us from [fossil fuels](#).

Provided by University of California - Berkeley
APA citation: Video: Artificial leaves to produce fuel on Earth and, one day, Mars (2018, January 25) retrieved 26 February 2021 from <https://phys.org/news/2018-01-video-artificial-fuel-earth-day.html>

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