

# APEC – Southern Illinois

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### Capturing Carbon with Artificial Leaves

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As climate change affects our planet and becomes a global concern, scientists are increasingly motivated to seek out solutions for reducing these carbon emissions.

In this regard, researchers have developed an up-and-coming artificial photosynthesis system, referred to as an “artificial leaf”, that mimics the natural photosynthesis process to attain solar light-driven CO<sub>2</sub> conversion. These devices are capable of converting sunlight energy directly into fuels that can be stored and used later as an energy source.

In recent news, engineers at the University of Illinois at Chicago (UIC) have built a cost-effective artificial leaf capable of capturing CO<sub>2</sub> at rates 100 times better than current systems! What makes this design better than current systems is that it works by capturing CO<sub>2</sub> from more diluted sources (such as air and flue gas) produced by coal-fired power plants and releases it for synthetic fuel use. Test results showed that it had a successfully high rate of capturing carbon given the available surface area, while also requiring less energy than that of a 1Watt LED lightbulb. Read more about this design here:

<https://www.newswise.com/articles/stackable-artificial-leaf-uses-less-power-than-lightbulb-to-capture-100-times-more-carbon-than-other-systems>

<https://www.dpaonthenet.net/article/189154/Stackable-artificial-leaf-uses-less-power-than-lightbulb.aspx>

*Other related articles:*

<https://www.acs.org/content/acs/en/education/resources/highschool/chemmatters/past-issues/2021-2022/october-2021/artificial-leaf.html>

<https://today.uic.edu/moving-artificial-leaves-out-of-the-lab-and-into-the-air>