

A-LEAF: exploring artificial photosynthesis

The objective of the A-LEAF (An Artificial Leaf) project is to develop a novel concept for a photo-electro-catalytic cell from earth-abundant materials for sustainable solar production of CO₂-based chemicals and fuels. It is a FET Proactive project that started in January 2017.



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The A-LEAF project offers a technology for mimicking photosynthesis. It proposes a novel concept for a photo-electro-catalytic (PEC) cell able to directly convert water and CO₂ into fuels and chemicals and oxygen, using exclusively solar energy.

Recently, the project consortium held an e-meeting to plan the final months of the project. A-LEAF, which was originally a 48-month project, ends in June 2021, after the 6-month extension that the European Commission has granted to the project due to delays imposed by COVID-19 pandemic. Now, the research team focuses on final steps to transfer all the knowledge developed through the last 4 years into an integrated and optimised device, and to identify all the limitations to achieve the best possible performance.

In the short report from the meeting, Professor Anthony Harriman, member of A-LEAF External Advisory Board from Molecular Photonics Laboratory at Newcastle University, said:

"The quality of the research is outstanding, as are the really strong interactions between the different groups."

In the last-year's edition of the Future Tech Week, the project succeeded with its video 'On the Road to Solar Fuels', which explains the impact of artificial photosynthesis and shows the device our consortium has been working on to transform CO₂ and water into solar fuels using sunlight as the source of energy.

Moreover, A-LEAF has already surpassed the 20 papers milestone set for the duration of the project. All the publications are available on the project website.

The A-LEAF project is coordinated at Institut Català d'Investigació Química (ICIQ, Spain). Other participants come from the Switzerland, Germany, France, Italy, Austria, Netherlands and the United Kingdom. One of the Consortium members, Prof. Ulrike Diebold from Technical University of Vienna (TU Wien), was also awarded with a European Research Council Advanced Grant to develop a new project called WatFun (*Water at Oxide Surfaces: A Fundamental Approach*), which has started in January 2021.

Background information

FET-Open and FET Proactive are now part of the Enhanced European Innovation Council (EIC) Pilot (specifically the Pathfinder), the new home for deep-tech research and innovation in Horizon 2020, the EU funding programme for research and innovation.

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