Paper ID: 30494
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66th International Astronautical Congress 2015

SPACE SYSTEMS SYMPOSIUM (D1)
Innovative and Visionary Space Systems Concepts (1)

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PHOTOSYNTHESIS AS A SOURCE OF ENERGY IN SPACE

Abstract

Scientists around the world are working towards the goal of developing technologies to harness energy from the sun to produce fuels for electricity generation. Fuels produced using solar energy would transform our energy options in the future by providing an alternative to conventional sources know till now. Researchers have provided important information on a specific portion of the photosynthetic process called photosystem II. It has been a major challenge to directly observe the individual steps of the solar water-splitting reaction that takes place during the photosynthesis. This finding provides new foundational research into how plants efficiently convert energy from the sun and could help inform the development of a new, highly robust, and more efficient generation of solar-energy technologies.

The research focuses on the first of two photochemical reactions that plants use to convert solar energy into chemical energy that takes place within photosystem II. Specifically, the researchers studied the binding and activation of the substrate water molecules in the catalytic site of photosystem II. This report explains the concept of solar fuels based in photosynthesis effect and their potential to transform our future energy options that may impact the electrical system inside a space vehicle.