

Harnessing Solar Energy for the Production of Clean Fuels

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An overview is presented of how recent theoretical insight into the processes of photosynthesis provides insight into how to generate third generation biofuels. Solar energy is plentiful since enough reaches the Earth's surface every hour to meet the world's annual energy needs. The problem lies in harnessing it, and nature has perfected in photosynthesis a highly efficient and flexible means of doing this across a wide variety of scales from isolated bacterial colonies to large forests. Progress has been made recently, to understand and mimic these processes, sufficient for scientists to be confident that it can work to produce fuels on a commercial scale in a sustainable manner by drawing inspiration from biological systems for the creation of both natural and artificial solar energy conversion systems that allow in the long run for a stable and sustainable energy supply.