Molecular Chromophores for Next-Generation Solar Photon Harvesting (Presentation Video)

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ABSTRACT

There is an increased interest in exploiting photophysical phenomena to enhance the performance of photovoltaic technologies, pushing their efficiency toward, and ultimately beyond, the Shockley-Queisser limit for a single-junction solar cell. This presentation will discuss the applicability of molecular chromophores to this endeavor, focusing on two well-known phenomena: (1) photochemical upconversion and (2) singlet fission. Recent discoveries have demonstrated that these 'scientific curiosities' exhibit significant promise for solar photoconversion applications. I will outline the mechanisms that underlay these two photon harvesting processes; highlight scientific questions that remain to be answered; and identify strategies for, and obstacles to, their incorporation into realistic photoconversion systems.

View presentation video on SPIE's Digital Library: http://dx.doi.org/10.1117/12.2050958

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