

CAM-IES: Centre for Advanced Materials for Integrated Energy Systems

WP4 Organic-inorganic hybrid interfaces - Spin triplet excitons for photovoltaics (Lead: Hugo Bronstein)

Splitting of spin-singlet excitons into two spin-triplet excitons each of half the singlet energy ('singlet fission') provide a very efficient means to down-convert high energy visible photons to near-IR photon pairs that may be then harvested in a semiconductor with near-IR bandgap.

Shockley-Queisser efficiency limit can potentially be overcome.

Aim to boost the efficiency of standard silicon solar cells using an add-on layer to double the current collected from green and blue photons.

singlet fission PV schematic

