

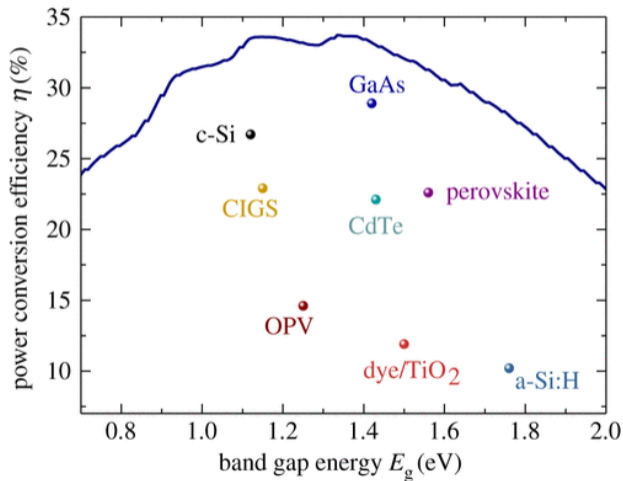
Se diffusion and defect passivation role in record performing CdTe photovoltaics

Sameer GUPTA
Selva Chandrasekaran SELVARAJ
Damien CALISTE
Pascal POCHET

L.Sim, CEA-Grenoble

March 17, 2021

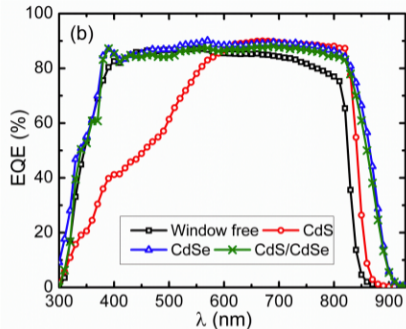
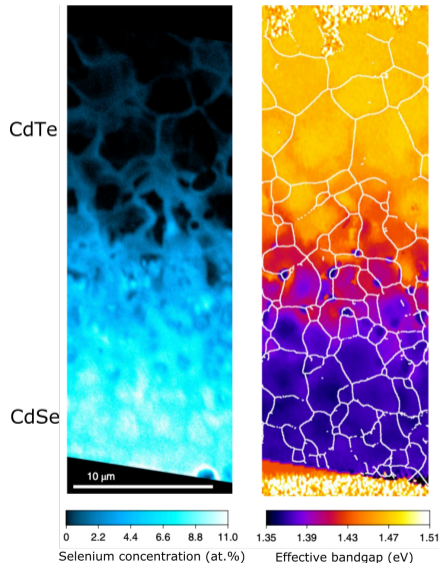
Why CdTe is a effective Solar cell absorber?



CdTe has optimal band-gap of 1.46 eV for photovoltaic application

Record efficiency of 22.1% achieved by Se alloying of CdTe

Se alloying impact on CdTe solar efficiency - Macroscopic level



Fast and long range diffusion of Se in to CdTe leading to band-gap grading.

In year 2019 it was established that deep (efficiency killer) defect passivation by Se is major reason behind efficiency increase.

Nat Energy 4, 504–511 (2019) *Appl. Phys. Lett.* 105, 183510 (2014)

