Mater Sci Nanotechnol 2017, 1:2

Tuning gallium concentration to enhance absorption coefficient of $CuIn_{1-x}Ga_xSe_2$ single nanowire

Mourad Rzaizi, A Oueriagli and **D Abouelaoualim**
Cadi Ayyad University, Morocco

Nanowires offer new opportunities for nanoscale quantum optics and cell photovoltaic. These advantages include reduced reflection, extreme light trapping, improved band gap tuning. The I– III–VI_2 family of semiconducting compounds, which includes CIGS has been widely used in photovoltaic because of its many advantages. We present a numerical investigation of effect concentration gallium and size on absorption coefficient of $CuIn_{1-x}Ga_xSe_2$ single nanowire. Within the envelop-function framework, the effect concentration gallium and size on the optical absorption coefficient are studied for the intraband transitions in $CuIn_{1-x}Ga_xSe_2$ single nanowire. Our results show that the parameters of nanostructure and incident optical intensity have a great effect on the optical characteristics of these nanostructures. Thus, the absorption coefficients which can be suitable for great performance optical can be easily obtained by tuning the concentration gallium.

mouradrz1@gmail.com