

Green synthesis of CIGSe nanoparticles by using ethanol as a reaction medium

TrangThiThuyLe, 페자이바부, Thanh Kieu Trinh,

Nguyen Tam Truong Nguyen, 박진호[†]

영남대학교

(chpark@ynu.ac.kr[†])

Cu (In,Ga)Se₂ (CIGSe) nanoparticles (NPs) were great attended to use as a light-absorbing materials in thin film solar cells. In this work, the CIGSe (NPs) were synthesized using modified sonochemical method. The ethanol was used as the main solvent, instead of highly toxic hydrazine (or ethylenediamine). Facilitated by suitable application of ultrasounds, CIGSe nanoparticles could be synthesized at ambient temperature, pronouncing its “green” character. By controlling the reaction time, pure phase CIGSe can be obtained with the structure of tetragonal phase. The properties of as-synthesized NPs were characterized by XRD, SEM, TEM, and UV-vis. No impurities were observed in the as synthesized- CIGSe nanoparticles.