Dear Colleagues

2017/02/28

Our published paper titled "**Band alignments at strained $Ge_{1-x}Sn_x$/relaxed $Ge_{1-y}Sn_y$ heterointerfaces,**" 50, 13LT02, *J. Phys. D: Appl. Phys.,* 2017.

GeSn heterostructures have attracted great attention in electronic and photonic device applications. To design the device structures, knowledge of band alignments at the heterointerfaces is required. Nevertheless, few information of band alignments at GeSn heterointerfaces is reported using the corrected average valence band offset ($\Delta E_{v,av}$) [Senaratne C L *et al* 2016 *J. Appl. Phys.* **120** 025701] and reliable band structure calculations. In this article, band alignments at fully strained $Ge_{1-x}Sn_x$/relaxed $Ge_{1-y}S_y$ heterointerfaces are theoretically studied based on the corrected $\Delta E_{v,av}$ and our calibrated nonlocal empirical pseudopotential method (EPM). The uncorrected $\Delta E_{v,av}$ and deformation potential method are also used for comparison. The corrected $\Delta E_{v,av}$ and our EPM have most accurate valence band offset with the available experimental data [Yamaha T *et al* 2016 *Appl. Phys. Lett.* **108** 061909]. Note that the calculated valence band offsets at SiGe heterointerfaces by the same method agree with previous reported experimental data [Teherani J T *et al* 2012 *Phys. Rev. B* **85** 205308]. The given band alignments, bandgaps (indirect and direct bandgaps), and band offsets (conduction and valence band offsets) of strained $Ge_{1-x}Sn_x$/relaxed $Ge_{1-y}S_y$ heterostructures could be fundamental information for designing GeSn heterostructures in possible applications afterward.

Sincerely yours,

Huang-Siang Lan,
Postdoctoral Researcher
Graduate Institute of Electronics Engineering
Room 511, Department of Electrical Engineering,
National Taiwan University,
1, Roosevelt Road, Sec. 4, Taipei, Taiwan, R.O.C.
(Tel) 886-2-33663700 ext. 511
(Fax) 886-2-23640076
(E-mail) hslan@ntu.edu.tw