

Lawrence Berkeley National Laboratory

Recent Work

Title

Correction to Wide Band Gap Chalcogenide Semiconductors.

Permalink

<https://escholarship.org/uc/item/7q33k114>

Journal

Chemical reviews, 120(15)

ISSN

0009-2665

Authors

Woods-Robinson, Rachel
Han, Yanbing
Zhang, Hanyu
[et al.](#)

Publication Date

2020-08-03

DOI

10.1021/acs.chemrev.0c00643

Peer reviewed

Correction to Wide Band Gap Chalcogenide Semiconductors

Rachel Woods-Robinson, Yanbing Han, Hanyu Zhang, Tursun Ablekim, Imran Khan, Kristin A. Persson, and Andriy Zakutayev

The original version of the article contained a number of problems related to references that may lead to error

propagation in the scientific literature. We would like to correct these issues, and sincerely apologize to the readers and reference authors for any confusion they might have caused.

1. ref 120 should be replaced with ref 146 to indicate ZnSe band gap, in section 2.2.2
2. ref 132 should be replaced with ref 131 to indicate ZnS lattice matching to other materials, in section 3.1.1
3. ref 136 claims electrical conductivity of $\sim 10^{-5}$ S cm^{-1} for 3% Cu doped ZnS rather than for 0.1% Cu doped ZnS, in section 3.1.1
4. ref 148 claims conductivity of 0.06 S cm^{-1} and mobility of 86 $\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$ instead of 0.02 S cm^{-1} and mobility of 13 $\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$, respectively, for N_{Se} doped ZnSe in section 3.1.1 (also in Table 1)
5. ref 163 and ref 67 should be cited for ~ 3.5 and ~ 3.0 eV band gaps of ZB and WZ MgTe respectively, in Table 1
6. ref 163, ref 225, and ref 226 to support data of intrinsic In_2S_3 in addition to ref 227, in Table 1
7. ref 171 claims p-type conduction due to Mn vacancy in RS instead of WZ phase of MnS, in Table 1
8. ref 188 claims conductivities up to ~ 1550 S cm^{-1} instead of 50 S cm^{-1} in In-doped CdS (also in Table 1), and ref 187 is to In doping in CdTe, in section 3.1.4
9. ref 249 should read “Bhandari, R. K.; Hashimoto, Y.; Ito, K. CuAlS₂ Thin-Films Prepared by Sulfurization of Metallic Precursors and their Properties. *Jpn. J. Appl. Phys.*, **2004**, 43 (10), 6890–6893”, in section 3.3.1.
10. ref 268 should be added to Ge_{Ga} and Sn_{Ga} defects in its following sentence, and Ti_{Ga} defect should be referred to “Palacios, P.; Aguilera, I.; Wahnón, P.; Conesa J. C. Thermodynamics of the Formation of Ti- and Cr-doped CuGaS_2 Intermediate-band Photovoltaic Materials. *J. Phys. Chem. C* **2008**, 112 (25), 9525–9529”, in section 3.3.1
11. ref 276 claims 2.2 to 2.5 eV instead of 2.5 to 2.7 eV, as experimental gap of AgAlSe_2 , in section 3.3.2
12. ref 305 and ref 306 should be swapped; ref 305 should refer to ionic conductivity, and ref 306 should refer to the electronic structure of Cu_3TaS_4 , in section 3.4.2
13. ref 308 and ref 309 should be swapped, where ref 309 should refer to synthesis and ref 308 should refer to band gap of Cu_3NbSe_4 , respectively, in section 3.4.2

14. ref 325 claims 2.6 eV instead of 2.2–2.6 eV as the gap for $\text{K}_2\text{Hg}_3\text{S}_4$, in section 3.4.5
15. ref 327 should be added to ref 326 for the band gap of Cu_3SbS_3 , and the band gaps of Li_3SbS_3 , Na_3SbS_3 , and $\text{Ca}_2\text{Sb}_2\text{S}_5$ should refer to “Bhattacharya, S.; Chmielowski, R.; Dennler, G.; Madsen, G. K. H. Novel ternary sulfide thermoelectric materials from high throughput transport and defect calculations. *J. Mater. Chem. A* **2016**, 4 (28), 11086–11093”, in section 3.4.6
16. ref 345 claims the field-effect mobility of CuSCN to be 0.01–0.1 $\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$ instead of 0.001–0.1 $\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$, in section 3.5.3
17. ref 360 is to band gaps of CsYZnSe_3 , CsSmZnSe_3 , and CsErZnSe_3 , and ref 357 is with respect to band gaps of BaYCuS_3 , BaNdCuS_3 , and BaNdAgS_3 , in section 3.5.6
18. ref 424 refers to the previous sentence about bulk As_2S_3 material; instead the sentence about As_2S_3 monolayer, indirect gap, strain, and thickness should refer to “Debbichi, L.; Kim, H.; Björkman, T.; Eriksson, O.; Lebègue S. First-principles investigation of two-dimensional trichalcogenide and sesquichalcogenide monolayers. *Phys. Rev. B* **2016**, 93, 245307” and “Miao, N.; Zhou, J.; Sa, B.; Xu, B.; Sun, Z. Few-layer arsenic trichalcogenides: Emerging two-dimensional semiconductors with tunable indirect–direct band-gaps. *J. Alloys Compd.* **2017**, 699, 554–560”, in section 3.6.2
19. ref 478 and ref 479 should be swapped, where ref 478 refers to theoretical predictions for CdSe, ZnS, ZnSe, and ZnTe, and ref 479 refers to experimental observations of Ga in CuInSe_2 , in section 4.1.2
20. ref 504 and ref 277 discuss AgAlTe_2 and AgAlSe_2 instead of AgGaTe_2 and AgGaSe_2 , respectively, and CuAlSe_2 instead of CuAlS_2 should be referenced to ref 269 in the same sentence, in section 4.1.3