

## Erratum to: The Effect of Multivalley Bandstructure on Thermoelectric Properties of $\text{Al}_x\text{Ga}_{1-x}\text{As}$

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In the original article there were three references that were inadvertently omitted from Tables I and

II and from the reference list, in addition to a few content errors in these tables. The corrected Tables I and II and the three omitted references are presented below:

**Table I.**  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  electronic structure parameters used to calculate electrical properties

Parameter	Value	Reference
Static dielectric constant	$13.18(1 - x) + 10.06x$	30
High frequency dielectric constant	$11.6(1 - x) + 8.16x$	30
Bulk modulus ( $\text{N/m}^2$ )	$(7.55 + 0.26x) \times 10^{10}$	31
Energy at $\Gamma$ at $T = 0$ (eV)- $E_{\Gamma 0}$	$1.519 + 1.155x + 0.37x^2$	32
Temperature dependency of energy at $\Gamma$	$E_{\Gamma 0} - 5.41 \times 10^{-4}T^2/(T + 204)$	32
Energy at $L$ at $T = 0$ (eV)- $E_{L0}$	$1.815 + 0.69x$	32
Temperature dependency of energy at $L$	$E_{L0} - 6.05 \times 10^{-4}T^2/(T + 204) + 0.040$	32
Energy at $X$ at $T = 0$ (eV)- $E_{X0}$	$1.981 + 0.124x + 0.144x^2$	32
Temperature dependency of energy at $X$	$E_{X0} - 4.6 \times 10^{-4}T^2/(T + 204) + 0.1$	32
Conduction band (CB) effective mass at $\Gamma$ for GaAs	0.063	32
CB longitudinal effective mass at $L$ for GaAs	1.9	32
CB transverse effective mass at $L$ for GaAs	0.075	32
CB longitudinal effective mass at $X$ for GaAs	1.58	This work
CB transverse effective mass at $X$ for GaAs	0.95	This work
CB effective mass at $\Gamma$ for AlAs	0.15	30
CB longitudinal effective mass at $L$ for AlAs	1.32	30
CB transverse effective mass at $L$ for AlAs	0.15	30
CB longitudinal effective mass at $X$ for AlAs	1.1	This work
CB transverse effective mass at $X$ for AlAs	0.19	This work
Valence band (VB) effective mass	0.51	This work
CB non-parabolicity ( $\text{eV}^{-1}$ ) for $L$ , $\Gamma$ , $X$	0.5, 0.5, 0.5	This work
VB non-parabolicity ( $\text{eV}^{-1}$ )	0.83	This work
CB acoustic phonon deformation potential (eV)	$3.6 - 0.7x$	This work
VB acoustic phonon deformation potential (eV)	$2.7 - 0.1x$	This work

**Table II.**  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  lattice parameters used to calculate the thermal conductivity

Parameter	Value	Reference
Debye temperature (K)	$368.57 + 55.941x + 23.487x^2$	32 <sup>a</sup>
Bulk modulus ( $\text{N/m}^2$ )	$(7.55 + 0.26x) \times 10^{10}$	31
Mass density ( $\text{kg/m}^3$ )	$(5.32 - 1.56x) \times 10^3$	30
CB acoustic phonon deformation potential (eV)	$3.6 - 0.7x$	This work
VB acoustic phonon deformation potential (eV)	$2.7 - 0.1x$	This work
Strain parameter for point defect scattering	1.3	This work
Grüneisen parameter	$0.12(1 - x) + 0.07x + 1.5x(1 - x)$	This work
Higher order phonon scattering	2.0	This work
Ratio of normal to Umklapp scattering	1.0	This work

<sup>a</sup>Polynomial fit of the experimental data reported in Ref. 32.

## REFERENCES

- 30. Landolt-Börnstein online library, Vol. III, <http://www.springermaterials.com/>. The  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  data is the weighted average of those of GaAs and AlAs.
- 31. S. Adachi, *J. Appl. Phys.* 61, 10 (1987).
- 32. <http://www.ioffe.ru/SVA/NSM/Semicond/AlGaAs/index.html>.