Errata

Erratum: Eight-band k·p model of strained zinc-blende crystals [Phys. Rev. B 41, 11 992 (1990)]

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In Eqs. (33)–(35), the matrix elements of the spin-orbit interaction $D_{\text{s.o.}}^{(1)} + D_{\text{s.o.}}^{(2)}$ are incorrectly given. The correct expression for these matrix elements is given by

$$
\mathbf{N}_1 = \frac{\Delta}{3}
\begin{bmatrix}
-\left[\dfrac{e}{3}+e_{zz}\right] & \dfrac{-2}{\sqrt{3}}(e_{xz}+ie_{yz}) & i\dfrac{2}{\sqrt{3}}e_{xy}+\dfrac{1}{\sqrt{3}}(e_{yy}-e_{xx}) & 0 \\[2ex]
\dfrac{-2}{\sqrt{3}}(e_{xz}-ie_{yz}) & e_{zz}-e & 0 & i\dfrac{2}{\sqrt{3}}e_{xy}+\dfrac{1}{\sqrt{3}}(e_{yy}-e_{xx}) \\[2ex]
(-i)\dfrac{2}{\sqrt{3}}e_{xy}+\dfrac{1}{\sqrt{3}}(e_{yy}-e_{xx}) & 0 & e_{zz}-e & \dfrac{2}{\sqrt{3}}(e_{xz}+ie_{yz}) \\[2ex]
0 & (-i)\dfrac{2}{\sqrt{3}}e_{xy}+\dfrac{1}{\sqrt{3}}(e_{yy}-e_{xx}) & \dfrac{2}{\sqrt{3}}(e_{xz}-ie_{yz}) & -\left[\dfrac{e}{3}+e_{zz}\right]
\end{bmatrix} ,
$$

$$
\mathbf{N}_2 = \frac{\Delta}{3}
\begin{bmatrix}
\dfrac{-1}{\sqrt{2}}(e_{xz}-ie_{yz}) & -\dfrac{1}{3\sqrt{2}}(3e_{zz}-e) \\[2ex]
\dfrac{1}{\sqrt{6}}(e_{yy}-e_{xx}+2ie_{xy}) & \dfrac{-1}{\sqrt{6}}(e_{xz}-ie_{yz}) \\[2ex]
\dfrac{-1}{\sqrt{6}}(e_{xz}+ie_{yz}) & \dfrac{1}{\sqrt{6}}(e_{xx}-e_{yy}+2ie_{xy}) \\[2ex]
\dfrac{1}{3\sqrt{2}}(3e_{zz}-e) & \dfrac{-1}{\sqrt{2}}(e_{xz}+ie_{yz})
\end{bmatrix} ,
\qquad
\mathbf{N}_3 = \frac{\Delta}{3}
\begin{bmatrix}
\frac{4}{3}e & 0 \\[1ex]
0 & \frac{4}{3}e
\end{bmatrix} ,
$$

where $e = e_{xx}+e_{yy}+e_{zz}$. In Eq. (30), the definition for the valence-band deformation-potential constant a should read

$$a = (-\tfrac{1}{3})(l+2m) .$$

Note that the above definition is the same as that given below in Refs. 1 and 2, but differs in sign from that in Ref. 3. In addition, the definition of R in Eq. (16) should read

$$R = \left[-\frac{\sqrt{3}}{2}\right]\frac{\hbar^2}{m_0}[\gamma_2(k_x^2-k_y^2)-2i\gamma_3 k_x k_y] .$$

Finally, in the definitions for P, Q, R, and S in Eq. (42), the Planck constant should be raised to the power of 2. The above corrections do not change the conclusions to this paper.

The author is grateful to Yong Zhang for pointing out the error in the spin-orbit interaction matrix elements.

[1] G. E. Pikus and G. L. Bir, Fiz. Tverd. Tela (Leningrad) 1, 1642 (1959) [Sov. Phys. Solid State 1, 1502 (1960)].
[2] G. L. Bir and G. E. Pikus, Fiz. Tverd. Tela (Leningrad) 3, 3050 (1961) [Sov. Phys. Solid State 3, 2221 (1962)].
[3] G. L. Bir and G. E. Pikus, Symmetry and Strain Induced Effects in Semiconductors (Wiley, New York, 1974).