ERRATUM

Erratum to: Modeling defects and plasticity in MgSiO₃ post-perovskite: Part 3—Screw and edge [001] dislocations

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Published online: 19 May 2017

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Erratum to: Phys Chem Minerals DOI 10.1007/s00269-017-0879-0

In the original publication of the article, Eqs. (2) and (3) are provided in the incorrect form. The corresponding correct equations are provided below.

Equation 2

The resulting force acting on the dislocation line is given by the Peach–Koehler equation (Peach and Koehler 1950):

$$\mathbf{F}_l = (\boldsymbol{\sigma} \cdot \mathbf{b}) \times \mathbf{l}, \quad (2)$$

where $\mathbf{F}_l$ is a force acting on a unit length of a dislocation line $\mathbf{l}$; $\boldsymbol{\sigma}$ is the applied stress tensor resulting from straining the cell and $\mathbf{b}$ is the Burgers vector.

Equation 3

Accounting for a change in dissociation width R in various metastable configurations with respect to that in the stable dislocation core, the associated energy increase ΔW should scale with the following expression (Hirth and Lothe 1982):

$$\frac{\Delta W}{L} = \gamma |R_{\text{SF}} - R_{\text{SF}}^{\text{eq}}| - \frac{\mu}{2\pi} (\mathbf{b}_1 \cdot \mathbf{l}_1)(\mathbf{b}_2 \cdot \mathbf{l}_2) \ln \frac{R_{\text{SF}}}{R_{\text{SF}}^{\text{eq}}} - \frac{\mu}{2\pi(1-\nu)} [(\mathbf{b}_1 \times \mathbf{l}_1) \cdot (\mathbf{b}_2 \times \mathbf{l}_2)] \ln \frac{R_{\text{SF}}}{R_{\text{SF}}^{\text{eq}}}, \quad (3)$$

where $\Delta W/L$ is the increase in energy per dislocation unit length with respect to the equilibrium configuration characterized by a dissociation width $R_{\text{SF}}^{\text{eq}}$; R_{SF} is the extension of a perfect stacking fault between the two partials; μ is the anisotropic shear modulus; ν is the Poisson ratio; $\mathbf{b}_i$ and $\mathbf{l}_i$ are the partial Burgers vectors and the dislocation line vectors, respectively.

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The online version of the original article can be found under doi:10.1007/s00269-017-0879-0.

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