



Corrections to “An Extension of the Vector-Play Model to the Case of Magneto-Elastic Loadings”

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COMMENTS AND CORRECTIONS

Corrections to “An Extension of the Vector-Play Model to the Case of Magneto-Elastic Loadings”

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There is an error in the above article [1] when the components of the second order magnetostriction strain tensor $\epsilon_{\alpha}^{\mu(2)}$ are introduced in section II.B, just before equation (14). It is stated that, in the case of a uniaxial stress tensor applied parallel to the magnetic field (direction 1), the only non-null component of $\epsilon_{\alpha}^{\mu(2)}$ is $\epsilon_{\alpha 11}^{\mu(2)}$. Although the expression given for $\epsilon_{\alpha 11}^{\mu(2)}$ by (14) in [1] is correct, the 11 component is not the only non-null component of $\epsilon_{\alpha}^{\mu(2)}$. The general expression of $\epsilon_{\alpha}^{\mu(2)}$ is given by equation (1) below:

$$\begin{aligned} \epsilon_{\alpha}^{\mu(2)} &= -\frac{\partial g_{\alpha}^{el(2)}}{\partial \sigma} \\ &= \frac{9}{2} \lambda'_s \sigma_{eq} \left[\left(\vec{\alpha} \otimes \vec{\alpha} - \frac{1}{3} \mathbf{I} \right) : \left(\vec{h} \otimes \vec{h} \right) \right] \left(\vec{h} \otimes \vec{h} - \frac{1}{3} \mathbf{I} \right) \end{aligned} \quad (1)$$

The particular case considered in [1], with $\vec{h} = [1 \ 0 \ 0]^t$ and $\sigma = \sigma_{11} (\vec{h} \otimes \vec{h})$ yields:

$$\begin{aligned} \epsilon_{\alpha 11}^{\mu(2)} &= 3 \lambda'_s \sigma_{11} \left(\alpha_1^2 - \frac{1}{3} \right) \\ \epsilon_{\alpha 22}^{\mu(2)} &= \epsilon_{\alpha 33}^{\mu(2)} = -\frac{3}{2} \lambda'_s \sigma_{11} \left(\alpha_1^2 - \frac{1}{3} \right) \\ \epsilon_{\alpha 23}^{\mu(2)} &= \epsilon_{\alpha 13}^{\mu(2)} = \epsilon_{\alpha 12}^{\mu(2)} = 0 \end{aligned} \quad (2)$$

This error does not affect the following calculations presented in the article.

REFERENCES

- [1] L. G. D. Silva, A. Abderahmane, M. Domenjoud, L. Bernard, and L. Daniel, “An extension of the vector-play model to the case of magneto-elastic loadings,” *IEEE Access*, vol. 10, pp. 126674–126686, 2022.

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