

# Erratum: “Electrostatic Forces and Stored Energy for Deformable Dielectric Materials”

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In this Erratum we point out and correct an omission of an important term in Eq. (8) of our original paper. This equation was a statement of the conservation of angular momentum and we inadvertently omitted the electrical body couple term that is needed in this momentum balance. In Eq. (9) the electrical body force components  $b_i^E$  are defined. A similar equation is needed to define the electrical body couple as

$$c_i^E = \epsilon_{ijk} \sigma_{jk}^M$$

Then, the correct statement of the balance of angular momentum and its analysis is given as

$$\begin{aligned} & \int_V c_i^E dV + \int_V \epsilon_{ijk} x_j (b_k + b_k^E) dV + \int_S \epsilon_{ijk} x_j (T_k + T_k^E) dS = \frac{d}{dt} \int_V \rho \epsilon_{ijk} x_j v_k dV, \\ & \int_V \epsilon_{ijk} \sigma_{jk}^M dV + \int_V \epsilon_{ijk} x_j (b_k + b_k^E) dV + \int_S \epsilon_{ijk} x_j \sigma_{lk} n_l dS = \int_V \rho \epsilon_{ijk} \frac{dx_j}{dt} v_k + \rho \epsilon_{ijk} x_j \frac{dv_k}{dt} + \underbrace{\frac{d\rho}{dt} \epsilon_{ijk} x_j v_k + \rho v_{l,i} \epsilon_{ijk} x_j v_k dV}_{\frac{d\rho}{dt} + \rho v_{l,i} = 0}, \\ & \int_V \epsilon_{ijk} \sigma_{jk}^M dV + \int_V \epsilon_{ijk} x_j (b_k + b_k^E) dV + \int_V \epsilon_{ijk} x_j \sigma_{lk,i} + \epsilon_{ijk} x_{j,i} \sigma_{lk} dV = \int_V \underbrace{\rho \epsilon_{ijk} v_j v_k}_0 + \rho \epsilon_{ijk} x_j \frac{dv_k}{dt} dV, \\ & \int_V \epsilon_{ijk} \sigma_{jk}^M dV + \int_V \epsilon_{ijk} x_j \underbrace{(\sigma_{lk,i} + b_k + b_k^E - \rho \frac{dv_k}{dt})}_0 dV + \int_V \epsilon_{ijk} \delta_{jl} \sigma_{lk} dV = 0, \\ & \int_V \epsilon_{ijk} (\sigma_{jk} + \sigma_{jk}^M) dV = 0 \end{aligned}$$

The result of this analysis appears in Eq. (13) of the original manuscript as

$$\sigma_{ji} + \sigma_{ji}^M = \sigma_{ij} + \sigma_{ij}^M$$

Note that Eq. (13) does not follow from the original Eq. (8), but does follow from this corrected version. Hence, Eq. (13) and all of the remaining equations within the original manuscript are correct.