

**Erratum: First-principles study on structural, dielectric, and dynamical properties
for three BN polytypes
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We correct some misprints that appear in the original paper.
The superscript k_β of the third term of Eq. (2) on page 3 is k_α , correctly:

$$\begin{aligned} \frac{\partial^2 E_{tot}}{\partial \varepsilon_\alpha \partial \varepsilon_\beta} = & \frac{1}{(2\pi)^3} \int_{BZ} d\mathbf{k} \sum_n^{occ} s [\langle u_{n\mathbf{k}}^{\varepsilon_\alpha} | P_{c,\mathbf{k}}^* (H_{\mathbf{k},\mathbf{k}}^{(0)} - \varepsilon_{n\mathbf{k}}^{(0)} S_{\mathbf{k},\mathbf{k}}^{(0)}) P_{c,\mathbf{k}} | u_{n\mathbf{k}}^{\varepsilon_\beta} \rangle + \langle u_{n\mathbf{k}}^{\varepsilon_\beta} | P_{c,\mathbf{k}}^* (H_{\mathbf{k},\mathbf{k}}^{(0)} - \varepsilon_{n\mathbf{k}}^{(0)} S_{\mathbf{k},\mathbf{k}}^{(0)}) P_{c,\mathbf{k}} | u_{n\mathbf{k}}^{\varepsilon_\alpha} \rangle + \langle \varphi_{n\mathbf{k}}^{k_\alpha} | P_{c,\mathbf{k}} | u_{n\mathbf{k}}^{\varepsilon_\beta} \rangle \\ & + \langle \varphi_{n\mathbf{k}}^{k_\beta} | P_{c,\mathbf{k}} | u_{n\mathbf{k}}^{\varepsilon_\alpha} \rangle + \langle u_{n\mathbf{k}}^{\varepsilon_\alpha} | P_{c,\mathbf{k}}^* | \varphi_{n\mathbf{k}}^{k_\beta} \rangle + \langle u_{n\mathbf{k}}^{\varepsilon_\beta} | P_{c,\mathbf{k}}^* | \varphi_{n\mathbf{k}}^{k_\alpha} \rangle] + \int \int \frac{\delta^2 E_{Hxc}}{\delta \rho(\mathbf{r}_1) \delta \rho(\mathbf{r}_2)} \Big|_{\rho^{(0)}} \rho^{\varepsilon_\alpha}(\mathbf{r}_1) \rho^{\varepsilon_\beta}(\mathbf{r}_2) d\mathbf{r}_1 d\mathbf{r}_2. \end{aligned} \quad (2)$$

On the same page, the correct expression for Eq. (9) is as follows:

$$|\vartheta_{n\mathbf{k}}^{k_\beta}\rangle = |\varphi_{n\mathbf{k}}^{k_\beta}\rangle + w_{Hxc}^{\varepsilon_\alpha}(\mathbf{r}) |u_{n\mathbf{k}}^{(0)}\rangle + \sum_{lij} |p_{i\mathbf{k}}^{I(0)}\rangle \int w_{Hxc}^{\varepsilon_\alpha}(\mathbf{r}) \tilde{q}_{ij}^{I(0)}(\mathbf{r}) d\mathbf{r} \langle p_{j\mathbf{k}}^{I(0)} | u_{n\mathbf{k}}^{(0)} \rangle. \quad (9)$$

Lastly, one term was missing in Eq. (25) on page 5:

$$\begin{aligned} \frac{\partial^2 E_{tot}}{\partial R_{I\alpha} \partial \varepsilon_\beta} = & \frac{1}{(2\pi)^3} \int_{BZ} d\mathbf{k} \left\{ \sum_n^{occ} s \left[\langle u_{n\mathbf{k}}^{(0)} | (H_{\mathbf{k},\mathbf{k}}^{R_{I\alpha}} - \varepsilon_{n\mathbf{k}}^{(0)} S_{\mathbf{k},\mathbf{k}}^{R_{I\alpha}}) P_{c,\mathbf{k}} | u_{n\mathbf{k}}^{\varepsilon_\beta} \rangle + \langle u_{n\mathbf{k}}^{\varepsilon_\beta} | P_{c,\mathbf{k}}^* (H_{\mathbf{k},\mathbf{k}}^{R_{I\alpha}} - \varepsilon_{n\mathbf{k}}^{(0)} S_{\mathbf{k},\mathbf{k}}^{R_{I\alpha}}) | u_{n\mathbf{k}}^{(0)} \rangle + \langle \vartheta_{n\mathbf{k}}^{R_{I\alpha} k_\beta} | u_{n\mathbf{k}}^{(0)} \rangle \right. \right. \\ & + \langle u_{n\mathbf{k}}^{(0)} | \vartheta_{n\mathbf{k}}^{R_{I\alpha} k_\beta} \rangle + \delta_{\alpha\beta} \sum_{lij} \langle u_{n\mathbf{k}}^{(0)} | p_{i\mathbf{k}}^{I(0)} \rangle Q_{ij}^I \langle p_{j\mathbf{k}}^{I(0)} | u_{n\mathbf{k}}^{(0)} \rangle + \sum_{lij} \langle u_{n\mathbf{k}}^{(0)} | p_{i\mathbf{k}}^{I(0)} \rangle \int w_{Hxc}^{\varepsilon_\beta}(\mathbf{r}) \tilde{q}_{ij}^{R_{I\alpha}}(\mathbf{r}) d\mathbf{r} \langle p_{j\mathbf{k}}^{I(0)} | u_{n\mathbf{k}}^{(0)} \rangle \left. \right] \\ & - \sum_{mn}^{occ} s \left[\sum_{lij} (\langle u_{n\mathbf{k}}^{(0)} | p_{i\mathbf{k}}^{IR_{I\alpha}} \rangle Q_{ij}^I \langle p_{j\mathbf{k}}^{I(0)} | u_{m\mathbf{k}}^{(0)} \rangle) \langle u_{m\mathbf{k}}^{(0)} | \vartheta_{n\mathbf{k}}^{k_\beta} \rangle + \langle \vartheta_{n\mathbf{k}}^{k_\beta} | u_{m\mathbf{k}}^{(0)} \rangle \sum_{lij} (\langle u_{m\mathbf{k}}^{(0)} | p_{i\mathbf{k}}^{I(0)} \rangle Q_{ij}^I \langle p_{j\mathbf{k}}^{IR_{I\alpha}} | u_{n\mathbf{k}}^{(0)} \rangle) \right]. \end{aligned} \quad (25)$$

These misprints do not affect the results and the conclusions of the paper.