

Erratum for: Comparison of direct and inverse methods for 2.5D traction force microscopy

Johannes W. Blumberg and Ulrich S. Schwarz

Heidelberg University, Institute for Theoretical Physics and Bioquant, Heidelberg, Germany

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Typo in Eq. (10)

In this publication, we wrote on page 7 for Eq. (10) [1]:

For 2D FTTC, one uses only the planar part at $z = 0$ [2–5]:

$$\tilde{\mathbf{G}}_{2D}(k_x, k_y) = \frac{1}{\mu k^3} \begin{pmatrix} (1 - \nu)k_x^2 + \nu k_y^2 & -\nu k_x k_y \\ -\nu k_x k_y & (1 - \nu)k_y^2 + \nu k_x^2 \end{pmatrix}. \quad (10)$$

Here we used $k = \sqrt{k_x^2 + k_y^2}$ and $\mu = E/2(1 + \nu)$. Note that this result differs in an important minus sign in the off-diagonal elements from the one given in the original publication on FTTC [2].

The diagonal contains typos, it should read k rather than k_x or k_y after $(1 - \nu)$ and the correct form is:

$$\tilde{\mathbf{G}}_{2D}(k_x, k_y) = \frac{1}{\mu k^3} \begin{pmatrix} (1 - \nu)k^2 + \nu k_y^2 & -\nu k_x k_y \\ -\nu k_x k_y & (1 - \nu)k^2 + \nu k_x^2 \end{pmatrix}. \quad (10)$$

The correct form is compatible with Eq.(24) in the article. This correct form also appears in Ref. [4] with μ expanded. Ref. [5] gives the correct equation in spherical coordinates in its supplementary material. We checked that the error in Eq.(10) is only a spelling mistake and did not occur in the code.

An alternative to the correction would be the equivalent representation

$$\tilde{\mathbf{G}}_{2D}(k_x, k_y) = \frac{1}{\mu k^3} \begin{pmatrix} k^2 - \nu k_x^2 & -\nu k_x k_y \\ -\nu k_x k_y & k^2 - \nu k_y^2 \end{pmatrix}. \quad (10)$$

This alternative is simpler and directly compatible to Eq.(24).

Legend Fig. 4

The legend for Fig. 4 has mixed up 4P finite difference (violett) and 3x3x3 area fit + DCS (green). The best method in the lower row (smallest d) is 3x3x3 area fit + DCS.

Acknowledgements

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References

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