Erratum: Elasticity and stability of a helical filament [Phys. Rev. E 71, 052801 (2005)]

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The main conclusions in this work are correct. However, the stability criterion, S, was addressed improperly. This is because $\dot{\theta}$ and $\dot{\psi}$ cannot be viewed as independent variables in the problem. Therefore, although Eq. (13) is correct, the positive definiteness of matrix S (with elements $S_{ij}=\partial^2\mathcal{E}/\partial\eta_i\partial\eta_j$, $i,j=1-5$) used in that equation provides a sufficient but not a necessary condition for stability. A sufficient and necessary condition is provided by the positive definiteness of a submatrix of S, S' (with elements $S'_{ij}=\partial^2\mathcal{E}/\partial\eta_i\partial\eta_j$, $i,j=1,2,4$). With this new stability condition, and with proper boundary conditions, a static helix can be stable (or at least metastable) [1] in accord with experimental observations [2].

[1] Z. Zhou, B. Joós, and P.-Y. Lai (unpublished).

[2] B. Smith, Y. V. Zastavker, and G. B. Benedek, Phys. Rev. Lett. **87**, 278101 (2001).

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