

Erratum: Elastic Screening of Pseudogauge Fields in Graphene [Phys. Rev. Lett. **134**, 046404 (2025)]

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There is a mistake in Fig. 4 of our Letter where we compare the continuum model [Fig. 4(a)] to the tight-binding result [Fig. 4(b)] for periodically buckled monolayer graphene. To make this comparison, one has to shift the origin of the Dirac cone in the continuum model to account for the mapping of the monolayer graphene Brillouin zone (BZ) to the superlattice BZ of the buckled graphene. In particular, for superlattice primitive vectors $\mathbf{L}_{1,2} = n\mathbf{a}_{1,2}$ where $\mathbf{a}_{1,2}$ are graphene primitive lattice vectors and integer $n > 1$,

$$n \bmod 3 = \begin{cases} 0 & K_{\pm} \rightarrow \gamma, \\ 1 & K_{\pm} \rightarrow \kappa_{\pm}, \\ 2 & K_{\pm} \rightarrow \kappa_{\mp}, \end{cases} \quad (1)$$

where we take $\mathbf{K}_{\pm} = \pm 4\pi\hat{x}/(3a)$. Here γ and $\kappa_{\pm}$ correspond to the origin and corners of the superlattice BZ, respectively. This mapping is illustrated in Fig. 1. In our Letter, we consider a commensurate buckling pattern with $n = 59$ ($n \bmod 3 = 2$).

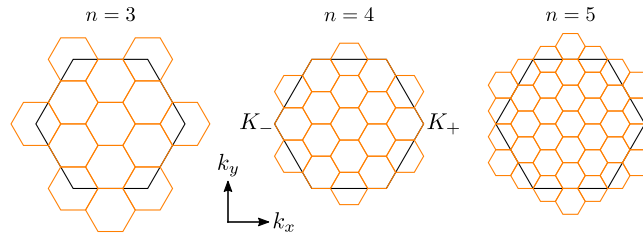


FIG. 1. Mapping between the original monolayer BZ (black) and the superlattice BZ (orange) for the three different cases. In Fig. 4 we have $n = 59$ which corresponds to the mapping illustrated in the rightmost panel for $n = 5$.

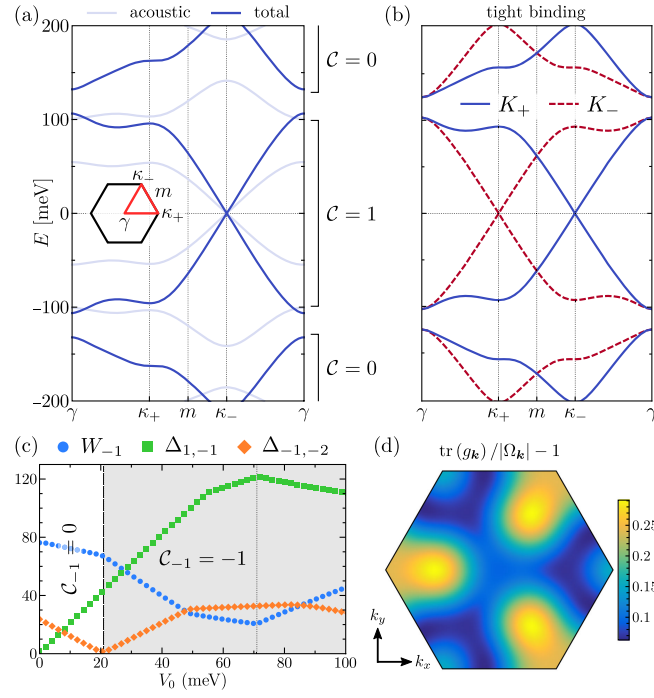


FIG. 2. (Updated version of Fig. 4.) Electronic bands near charge neutrality for graphene subject to a periodic C_{3v} corrugation with period $L = 59a \approx 14.5$ nm, $h_0 = 5$ Å, and $\theta = 15^\circ$. (a) Continuum model for valley K_+ with only acoustic (light) and total (dark) displacements. Plotted along high-symmetry lines (inset). The other valley is related by time reversal and the valley Chern number $\mathcal{C}$ is indicated. (b) Tight binding using atomic positions from LAMMPS where the valley polarization is calculated with a modified Haldane hopping (see Supplemental Material of the Letter). (c) Bandwidth W_n and gaps $\Delta_{n,n-1}$ for the first valence band ($n = -1$) for $h_0 = 6$ Å and $\theta = 15^\circ$ as a function of an electric field along the z direction, showing the valley Chern number. Kinks in the topological region are due to direct-to-indirect gap transitions. (d) Violation of trace condition for the minimum bandwidth in (c).

Hence, the $K_\pm$ point is mapped to the $\kappa_\mp$ point. However, we incorrectly mapped $K_\pm$ to $\kappa_\pm$ corresponding to $n \bmod 3 = 1$. We note that the calculation of the energy bands was correct up to a global shift in momentum space and all of the original conclusions of our Letter remain valid. The corrected version of the original Fig. 4 is shown in Fig. 2 here.