

Erratum: Observation of Oriented Landau Levels and Helical Zero Modes in Berry Dipole Acoustic Crystals [Phys. Rev. Lett. **134**, 116604 (2025)]

Qingyang Mo, Riyi Zheng, Cuicui Lu, Xueqin Huang, Zhengyou Liu, and Shuang Zhang 



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In this Letter, we did not adequately describe the relationship between this work and previous work by Graf and Piéchon [1]. While we cited the work as [31] in the original Letter, we did not fully acknowledge specific instances where our study draws inspiration from their contributions.

Specifically: (i) The continuum model [Eq. (1)] was first introduced by Ref. [31] instead of Ref. [28]. Also, dipolar Berry curvature $[\kappa(\vec{d} \cdot \vec{q})\vec{q}/(2|q|^4)]$, Landau level solutions [Eq. (2)], and tight-binding model [Fig. 2(a)] were originally introduced in [31]. We also add the following note to the Fig. 2 caption: “Panel (a) depicts the lattice model from Ref. [31].” (ii) Citation [31] was omitted in the sentences as “Very recently, band crossing beyond the above paradigm was predicted and studied theoretically” and “Furthermore, the Berry dipole is considered as a topological phase transition point from trivial insulators to 3D Hopf insulators.” (iii) Additionally, we correct a technical statement. The claim that “oriented Landau levels [...] cannot be revealed by semiclassical quantization” is inaccurate. As noted in [31], intraband quantum geometric corrections within semiclassical methods can capture this effect. The text is revised to “Oriented Landau levels arise from quantum geometry but require intraband corrections for semiclassical description (see [31]).”

[1] A. Graf and F. Piéchon, Massless multifold Hopf semimetals, *Phys. Rev. B* **108**, 115105 (2023).