

Response to referee 2 report

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May 26, 2025

Dear Anton Akhmerov,

First of all we thank you for the interesting remarks. In this document we address the comments, and propose some modifications to the paper.

Kind regards,

The authors.

Clarify that the result applies to the sublattice-symmetric system, a higher order TI. Alternatively demonstrates that the conclusions also hold with sublattice symmetry breaking, but this seems to be much harder.

Indeed we consider the sublattice-symmetric system. To make this more clear we propose some changes to the manuscript.

- Minor changes to the abstract: “In this work we study the impact of **chiral symmetry preserving** quasiperiodic modulations on the paradigmatic Benalcazar-Bernevig-Hughes model, which hosts topological insulating phases with **zero-energy sublattice-polarized modes**.”
- Extended the paragraph after equation 3, to clarify that we treat the model with chiral symmetry and sublattice-polarized corner modes, and expanded on the symmetries of the model as a function of phase shifts.

Fix the colorbar of the Fig. 1b to include the log in the label.

Added *log* to the colorbar of Fig. 1(b).

Consider using a different colormap in the plots for easier readability (see e.g. <https://bids.github.io/colormap/> for a further explanation).

Changed the colormap (plasma) of all density plots.

Consider including some of the context described in the report.

- Extended the discussion of phase shifts at the end of the paragraph that antecedes equation 4, to clarify the role of phase shifts in finite and open boundary systems.
- Rewrote the third paragraph of the conclusion to include some of the remarks made in the referee report.