

Carpentier, D.; Delplace, P.; Fruchart, M.; Gawędzki, K.; Tauber, C.
Construction and properties of a topological index for periodically driven time-reversal invariant 2D crystals. (English) [Zbl 1331.82065](#)
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Summary: We present mathematical details of the construction of a topological invariant for periodically driven two-dimensional lattice systems with time-reversal symmetry and quasienergy gaps, which was proposed recently by some of us. The invariant is represented by a gap-dependent \mathbb{Z}_2 -valued index that is simply related to the Kane-Mele invariants of quasienergy bands but contains an extra information. As a byproduct, we prove new expressions for the two-dimensional Kane-Mele invariant relating the latter to Wess-Zumino amplitudes and the boundary gauge anomaly.

MSC:

82D25 Statistical mechanical studies of crystals

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Keywords:

time-reversal; quasienergy gaps; quasienergy bands

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