

Abstract Submitted  
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**Floquet topological systems in the vicinity of level crossings: Reservoir induced coherence of the Floquet density matrix and steady-state entropy production**<sup>1</sup> HOSSEIN DEHGHANI, ADITI MITRA, New York University — Results are presented for a Floquet topological system for the case where the separation between quasi-energy levels becomes small, and in particular, comparable to the coupling strength to an external reservoir. For this case, even at steady-state, the reduced density matrix in the Floquet basis has non-zero off-diagonal elements, with the strength of the off-diagonal elements increasing as one approaches the level crossings. The steady-state reduced density matrix has oscillations at integer multiples of the periodic drive, and a Fourier decomposition allows the extraction of the occupation of the Floquet quasi-energy levels, which also depends on the coupling to the reservoir. The lack of detailed balance is quantified in terms of an entropy production rate.

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