Some Connections Between Almost Periodic and Periodic Discrete Schrödinger Operators With Trigonometric Potentials

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Abstract. We study discrete Schrödinger operators with trigonometric potentials. In particular, we are interested in the connection between the absolutely continuous spectrum in the almost periodic case and the spectra in the periodic case. We prove a weak form of a precise conjecture relating the two.

We also bound the measure of the spectrum in the periodic case in terms of the Lyapunov exponent in the almost periodic case.

In the proofs, we use a partial generalization of Chambers’ formula. As an additional application of this generalization, we provide a new proof of Herman’s lower bound for the Lyapunov exponent.