Erratum

Proposition VII.5 in page 148 should be corrected by the following more restrictive form:

Proposition 1. *Let V be real analytic, ω nonresonant and μ_ϕ a spectral measure of $L_{V,\omega,\phi}$. Assume that there is a measurable set A such that*

$$\mu_\phi(A) = 0$$

for almost every $\phi \in \mathbb{T}$. Then $n^L(A) = 0$ and $n^H(A) = 0$.

In the thesis it is seen that the set

$$A = \sigma^L(V, \omega) \setminus \bigcup_{\phi \notin \Phi} \sigma^L_{pp}(V, \omega, \phi),$$

where $\sigma^L_{pp}(V, \omega, \phi)$ is the set of point eigenvalues of $L_{V,\omega,\phi}$ given by Bourgain & Jitomirskaya [BJ02a] satisfies that $n^L(A) = 0$ (using the corrected version of Proposition VII.6). Therefore also $n^H(A) = 0$. To prove Corollary VII.3 (from which Theorem VII.1 follows as it is shown in Section VII.2.1) it only remains to show that also the Lebesgue measure of A is zero.

To do so, one can invoke Deift & Simon [DS83]. For almost periodic discrete Schrödinger operators they prove that for almost every a in the set where the Lyapunov exponent vanishes, one has the inequality

$$2\pi \sin \pi N^H(a) \frac{dN^H}{da} \geq 1. \tag{1}$$

Therefore, under the additional assumption that the Lyapunov exponent vanishes in the spectrum, the inequality (1) implies that if A is a subset of $\sigma^H(\omega, V)$ with $n^H(A) = 0$ then also the Lebesgue measure of A is zero.

As a consequence of Bourgain & Jitormirskaya [BJ02a, BJ02b], for any a in $\sigma^H(V, \omega)$, (with $|V| < \varepsilon$) the Lyapunov exponent vanishes in the spectrum. Therefore, the set A has Lebesgue measure zero and Corollary VII.3 follows.

References

[BJ02a] J. Bourgain and S. Jitomirskaya, *Absolutely continuous spectrum for 1D quasiperiodic operators*, Invent. Math. **148** (2002), no. 3, 453–463.

[BJ02b] J. Bourgain and S. Jitomirskaya, *Continuity of the Lyapunov exponent for quasiperiodic operators with analytic potential*, J. Statist. Phys. **108** (2002), no. 5-6, 1203–1218, Dedicated to David Ruelle and Yasha Sinai on the occasion of their 65th birthdays.

[DS83] P. Deift and B. Simon, *Almost periodic Schrödinger operators III. The absolute continuous spectrum.*, Comm. Math. Phys. **90** (1983), 389–341.