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JEAN-MICHEL COMBES, FRANÇOIS GERMINET AND ABEL KLEIN

**ERRATUM TO
POISSON STATISTICS FOR EIGENVALUES OF CONTINUUM
RANDOM SCHRÖDINGER OPERATORS**

ERRATUM TO POISSON STATISTICS FOR EIGENVALUES OF CONTINUUM RANDOM SCHRÖDINGER OPERATORS

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The following results in the paper in question are not proved, due to a mistake in the derivation of inequality (5-8): Theorem 2.1, Theorem 2.2, Lemma 5.1.

All references are to [Combes et al. 2010]. The inequality stated in (5-8),

$$\mathbb{E}\{(\operatorname{tr} P_{\omega}^{(\Lambda)}(I))(\operatorname{tr} P_{\omega}^{(\Lambda)}(I) - 1)\} \leq Q_1 Q_2 \rho_+ |I| \sum_{j \in \tilde{\Lambda}} \mathbb{E}_{\omega_j^{\perp}} \{\Phi_{b,\tau}^{(\Lambda)}(\omega_j^{\perp})\},$$

is not correct. This inequality was derived by taking the expectation of both sides of (5-6) and estimating $\mathbb{E}\{\operatorname{tr}\{\sqrt{u_j} P_{\omega}^{(\Lambda)}(I) \sqrt{u_j} S_j^{(\Lambda)}\}\}$ by the spectral-averaging estimate stated in (3-5). Unfortunately, this argument implicitly assumes $\Phi_{b,\tau}^{(\Lambda)}(\omega_j^{\perp}) \geq 0$ (see (5-7)), which cannot be guaranteed. This error invalidates the proof of Lemma 5.1. As a consequence, for continuum Anderson Hamiltonians, a Minami estimate (Theorem 2.2) and Poisson statistics for eigenvalues (Theorem 2.1) remain conjectures.

The only results affected by the error in Lemma 5.1 are Theorems 2.1 and 2.2. Everything else in Theorem 2.3 is correct. (Note that the proof of that theorem works with a weaker form of the Minami estimate.) The Wegner estimates of Section 4, including Wegner estimates with constants that go to zero as either the energy approaches the bottom of the spectrum or the disorder goes to infinity, are correct. The new approach to Minami's estimate for the discrete Anderson model in Section 3 is correct.

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References

[Combes et al. 2010] J.-M. Combes, F. Germinet, and A. Klein, "Poisson statistics for eigenvalues of continuum random Schrödinger operators", *Anal. PDE* 3:1 (2010), 49–80. MR 2011i:47051 Zbl 1227.82034

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