

Addendum to "Asymptotic Distribution of the Eigenvalues of the Lower Part of the Schrödinger Operator Spectrum"

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It has recently come to our attention that our assumption in the above paper (see the beginning of section 2) that $V(\mathbf{x})$ possesses continuous first partial derivatives throughout $|\mathbf{x}| \geq R - 1$ may be completely dropped, the main theorem stated at the end of section 2 remaining true without this assumption. For this assumption was used only at the end of the proof of Lemma (3.4), with only Lemmas (3.4), (3.5), and (3.6) so dependent upon it, in order to obtain $n^+(\lambda; V) \leq N^+(\lambda; V)$ as stated in Lemma (3.6) (see the notation immediately following (3.33)). However, this last relation is only used in the proof of the reduction theorem (3.8) with $V(\mathbf{x})$ replaced by $q_-(|\mathbf{x}|) = q(|\mathbf{x}|) - M|\mathbf{x}|^{-2}$, and the continuous differentiability of $q_-(r)$ (over $r \geq R' - 1 = R$) is more than assured by the other assumptions on q made in section 2.

It may also be remarked that, except for Lemmas (3.5) and (3.6) and the last sentence of Lemma (3.4), all other lemmas of section 3 use in their proof and remain valid under the sole assumptions about real-valued, measurable $V(\mathbf{x})$ over $\mathbf{x} \in E_n$ that for some real $R > 1$ the integrability condition (2.7) be satisfied $V(\mathbf{x})$ be essentially bounded over $|\mathbf{x}| \geq R - 1$ and have

$$\lim_{r \rightarrow +\infty} (\text{ess inf}_{|\mathbf{x}| \geq r} V(\mathbf{x})) \geq 0.$$

If additionally $V(\mathbf{x})$ is assumed to possess continuous first partials throughout $|\mathbf{x}| \geq R - 1$, then all lemmas of section 3 likewise hold. Theorem (3.9) (with inf replacing min) holds likewise under the sole assumptions about real-valued $q(r)$ that $q'(r)$ exist and be continuous and $q(r)$ be bounded throughout $r \geq R$, in place of (2.1)–(2.6).

Corrections

- (i) In order to be preserved under the shift to $q_-(r)$ from $q(r)$ (see the section 4, third paragraph), (2.2) must be restated as