Erratum to “Negative Discrete Spectrum of Perturbed Multivortex Aharonov-Bohm Hamiltonians” Ann. Henri Poincaré, 5 (2004) 979–1012

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Regrettably, there is an error in the proof of Proposition 4.1. To correct it the following changes are needed.

On page **989** :

The quantity $\frac{\partial u}{\partial x_1}$ in the last term of (4.2) has to be replaced by $\frac{\partial u}{\partial x_2}$.

Line 10 (the last line of the first non-numbered formula for I_2): the two signs – must be +;

the lines 13 and 14 (the last two lines in the second non-numbered formula for I_2): again the last two – must be +, which gives + instead of – in (4.3), thus (4.3) has to be replaced by

$$\begin{aligned} I_2 &= \int_{\Omega_n} 2A_1 \operatorname{Im} \left(\frac{\partial u}{\partial x_1} \operatorname{sign} \bar{u} \right) |v| + 2A_2 \operatorname{Im} \left(\frac{\partial u}{\partial x_2} \operatorname{sign} \bar{u} \right) |v| \\ &\geq - \int_{\Omega_n} (A_1^2 + A_2^2) |u| |v| \\ &\quad - \int_{\Omega_n} \left[\operatorname{Im} \left(\frac{\partial u}{\partial x_1} \operatorname{sign} \bar{u} \right) \right]^2 \frac{|v|}{|u|} \chi_{\{u \neq 0\}} - \int_{\Omega_n} \left[\operatorname{Im} \left(\frac{\partial u}{\partial x_2} \operatorname{sign} \bar{u} \right) \right]^2 \frac{|v|}{|u|} \chi_{\{u \neq 0\}}. \end{aligned} \tag{4.3}$$

After this, (4.4) follows, and then, on page **990**, the rest of the proof, after the first line must be replaced by:

$$\operatorname{Re} \mathfrak{h}_n[u, v] \geq \mathfrak{l}_n[|u|, |v|]$$

for all $u, v \in H_0^1(\Omega_n)$ obeying $u \cdot \bar{v} \geq 0$. This proves (4.1).

We use the occasion to make a comment on the results of the paper. For the case $\gamma \geq 1/2$, alternatively to Theorem 1.2 in the paper, the Lieb-Thirring type estimates can also be obtained by an approximation procedure based on the results of the paper by A. Laptev and T. Weidl ([18] in the reference list, Theorem 3.2) and of the paper by D. Hundertmark, A. Laptev, T. Weidl, New bounds on

the Lieb-Thirring constants. *Invent. Math.* 140 (2000), no. 3, 693–704, Theorem 4.2. This reasoning would give better constants in the estimates, up to 7 times smaller than the ones obtained in our Theorem 1.2.

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