ERRATUM TO “DIRICHLET BOUNDARY CONDITIONS FOR ELLIPTIC OPERATORS WITH UNBOUNDED DRIFT”

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The statement of Theorem 2.4 in our paper published in vol. 133, no. 9 (2005), pages 2625-2635, must be changed as follows.

Theorem 2.4. Let $\Phi$ be a $C^2$ function such that $\Phi(x) + \alpha |x|^2/2$ is convex for some $\alpha > 0$, assume that $\partial\Omega \in C^3$ and that

$$\frac{\partial \Phi}{\partial n} - H \leq 0.$$ 

Then $(A, D(A))$ is self-adjoint and dissipative in $L^2(\Omega, \mu)$. Moreover, the map $u \mapsto \langle (D^2 \Phi) Du, Du \rangle$ is continuous from $D(A)$ to $L^1(\Omega, \mu)$.

Here $H = H(x)$ is the scalar mean curvature of $\partial \Omega$ at $x$, taken positive if $\Omega$ is convex.

The proof remains the same except at one point; at the beginning of page 2629 we have to use the identity

$$\Delta u = \langle (D^2 u) n, n \rangle + H \frac{\partial u}{\partial n} \text{ at } \partial \Omega$$

for regular functions $u$ vanishing at $\partial \Omega$, instead of $\Delta u = \langle (D^2 u) n, n \rangle$. Accordingly, from the equality $\lambda u - A u = f$ at $\partial \Omega$ we get the estimate

$$\int_{\partial \Omega} \theta_R^2 \langle (D^2 u) n, Du \rangle e^{-\Phi} d\sigma \leq \int_{\partial \Omega} \theta_R^2 \left( \frac{\partial \Phi}{\partial n} - H \right) \left( \frac{\partial u}{\partial n} \right)^2 e^{-\Phi} d\sigma$$

instead of

$$\int_{\partial \Omega} \theta_R^2 \langle (D^2 u) n, Du \rangle e^{-\Phi} d\sigma \leq \int_{\partial \Omega} \theta_R^2 \frac{\partial \Phi}{\partial n} \left( \frac{\partial u}{\partial n} \right)^2 e^{-\Phi} d\sigma.$$ 

Theorem 2.5 holds without any change in the statement because if $\partial \Omega$ is uniformly $C^2$, then $H$ is bounded.
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