Rev. Mat. Iberoamericana **21** (2005), no. 2, 693–694

Corrigenda: On the product theory of singular integrals

Rev. Mat. Iberoamericana **20** (2004), no. 2, 531–561.

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We wish to acknowledge and correct an error[1] in a proof in our paper *On the product theory of singular integrals*, which appeared in Revista Matemática Iberoamericana, volume 20, number 2, 2004, pages 531-561. In Lemma 2.3.2, part (a), we wish to show that for $\lambda > 0$, the operator $R(\lambda, \mathcal{L}) = (\lambda I + \mathcal{L})^{-1}$ is bounded on $L^\infty(M)$ with a norm that may depend on λ. We write the operator as

$$R(\lambda, \mathcal{L})[f](x) = \int_M f(y)\, r_\lambda(x, y)\, dy.$$

It then follows that

$$r_\lambda(x, y) = \int_0^\infty e^{-\lambda s}\, H(s, x, y)\, ds$$

where $H(s, x, y)$ is the heat kernel for the operator $\mathcal{L}$. We assert in equation (2.12) that there is a constant C so that for all $\lambda > 0$

$$|r_\lambda(x, y)| \leq C\, \frac{d^2(x, y)}{V(x, y)}. \tag{2.12}$$

This is not correct when M is a compact manifold. It should be replaced by the statement that when M is compact and of dimension at least 3, there is a constant C so that for all $\lambda > 0$

$$|r_\lambda(x, y)| \leq C\, \frac{d^2(x, y)}{V(x, y)} + \frac{C}{\lambda}. \tag{2.12a}$$

This estimate still shows that the operator $R(\lambda, \mathcal{L})$ is bounded on $L^\infty(M)$ if M is compact.

[1]We wish to thank Professor Dachun Yang of Beijing Normal University for bringing this error to our attention.