CORRECTION ON A PREVIOUS PAPER

BY
E. M. STEIN

The purpose of this note is to correct an error which occurs in the proof of Lemma 5 of [1]. The inequality (3.3) is incorrect and should be replaced by $|k_t(x)| \leqq (A/|x|)(1+\log(|x|t))$, if $t \geqq 1/|x|$, and $n \geqq 2$. (Hence, in addition, inequality (3.3*) does not need a separate proof.)

Arguing as before we have,

$$k_t(x) = \int_\Sigma \frac{e^{-irt\cos(x',y')} - 1}{r\cos(x',y')}\,\Omega(y')d\Sigma.$$

Divide the unit sphere Σ into two disjoint regions, Σ_1, and Σ_2, so that $\Sigma_1 = \{y' \mid |\cos(x',y')| \leqq 1/rt\}$, $(rt \geqq 1)$, and Σ_2 is the complement.

The integral corresponding to Σ_1 is estimated by

$$A\int_{\Sigma_1}\left|\frac{rt\cos(x',y')}{r\cos(x',y')}\right|d\Sigma = At\int_{\Sigma_1} d\Sigma = tO(1/rt) = O(1/r).$$

The integral corresponding to Σ_2 is estimated by

$$A\int_{\Sigma_2}\frac{d\Sigma}{r|\cos(x',y')|} = \frac{A}{r}\int_{\Sigma_2}\frac{d\Sigma}{|\cos(x',y')|} \leqq \frac{A}{r}(1+\log(rt)).$$

The rest of the proof of the lemma is then concluded as before.

Reference

1. E. M. Stein, *On the functions Littlewood-Paley, Lusin, and Marcinkiewicz*, Trans. Amer. Math. Soc. vol. 88 (1958) pp. 430–466.