Mathematics > Classical Analysis and ODEs

Endpoint Boundedness of Riesz Transforms on Hardy Spaces Associated with Operators

Jun Cao, Dachun Yang, Sibei Yang

(Submitted on 26 Jul 2011 (v1), last revised 28 Jun 2012 (this version, v3))

Let L_1 be a nonnegative self-adjoint operator in $L^2({\mathbb R}^n)$ satisfying the Davies-Gaffney estimates and L_2 a second order divergence form elliptic operator with complex bounded measurable coefficients. A typical example of L_1 is the Schr\"odinger operator $-\Delta+V$, where Δ is the Laplace operator on ${\mathbb R}^n$ and $0 \le V\in L^1_{\mathop\mathrm{loc}} ({\mathbb R}^n)$. Let $H^p_{L_i}(\mathbb {R}^n)$ be the Hardy space associated to L_i for $i\in\{1,\,2\}$. In this paper, the authors prove that the Riesz transform $D (L_i^{-1/2})$ is bounded from $H^p_{L_i}(\mathbb{R}^n)$ to the classical weak Hardy space $WH^p (\mathbb{R}^n)$ in the critical case that $p=n/(n+1)$. Recall that it is known that $D (L_i^{-1/2})$ is bounded from $H^p_{L_i}(\mathbb{R}^n)$ to the classical Hardy space $H^p(\mathbb{R}^n)$ when $p\in(n/(n+1),\,1]$.

Comments:	Rev. Mat. Complut. (to appear)
Subjects:	**Classical Analysis and ODEs (math.CA)**; Functional Analysis (math.FA)
MSC classes:	47B06 (Primary) 42B20, 42B25, 42B30, 35J10 (Secondary)
Cite as:	**arXiv:1107.5097 [math.CA]**
	(or **arXiv:1107.5097v3 [math.CA]** for this version)

Submission history

From: Dachun Yang [view email]
[v1] Tue, 26 Jul 2011 00:20:41 GMT (15kb)
[v2] Wed, 28 Sep 2011 01:23:15 GMT (14kb)
[v3] Thu, 28 Jun 2012 02:02:29 GMT (14kb)

Which authors of this paper are endorsers?