Dorothee Frey - Weighted norm est. beyond C.Z. 14/09/2016.

Hytönen: $w \in A_2$, T CZO.

$$\|Tu\|_{L^2(w)} \lesssim [w]_{A_2} \|u\|_{L^2(w)}.$$

Reisz: $\|\nabla L^{-\frac{1}{2}} f\|_2 \lesssim c\|f\|_2$. $L = -\mathrm{div} A \nabla$. $A \in L^\infty$.

Assumptions on L: L injective, θ sectorial, e^{-tL} has

certain decay.

T hol op, linear, decay condition on $\|T(tL)^N e^{-tL}\|_{L^{p_0}(B_1) \to L^{q_0}(B_2)}$.
high freq.

+ low frequency $\exists\, p_1 \in [p_0, 2)$. satisfying a
condition involving $\left(\fint_{B(x,r)} |T e^{-r^2 L} f|^{q_0} \right)^{1/q_0}$.

(0) L^2 unweighted $\rightarrow$ Kato. Sq. root.

(1) L^p unweighted.

(2) L^p weighted, not sharp $w \in A_{p/p_0} \cap RH_{(q_0/p)'}$.