

1155-42-438

Eyvindur Ari Palsson* (palsson@vt.edu), Department of Mathematics, 225 Stanger Street, Blacksburg, VA 24061-1026, and **Joeun Jung**. *Bounds for singular integral operators motivated by Calderón's commutators.*

The commutators first studied by Calderón

$$\mathcal{C}_A^{(k)} f(x) = p.v. \int_{\mathbb{R}} \frac{1}{x-y} \left(\frac{A(x) - A(y)}{x-y} \right)^k f(y) dy,$$

for $k = 1, 2, \dots$, were important in the study of the Cauchy integral on Lipschitz curves. By dropping an average in the first commutator one obtains the bilinear Hilbert transform. Finding L^p estimates for the bilinear Hilbert transform was an important open question in harmonic analysis until Lacey and Thiele showed a wide range of L^p estimates in two Annals papers in 1997 and 1999. Dropping two averages in the second commutator yields the trilinear Hilbert transform for which no L^p estimates are known. In this talk we will discuss both L^p bounds and sparse domination for operators obtained by dropping a single average in the Calderón commutators. (Received January 20, 2020)