

Compact Commutators of Rough Singular Integral Operators

Jiecheng Chen and Guoen Hu

Abstract. Let $b \in \text{BMO}(\mathbb{R}^n)$ and T_Ω be the singular integral operator with kernel $\frac{\Omega(x)}{|x|^n}$, where Ω is homogeneous of degree zero, integrable and has mean value zero on the unit sphere S^{n-1} . In this paper, by Fourier transform estimates and approximation to the operator T_Ω by integral operators with smooth kernels, it is proved that if $b \in \text{CMO}(\mathbb{R}^n)$ and Ω satisfies certain minimal size condition, then the commutator generated by b and T_Ω is a compact operator on $L^p(\mathbb{R}^n)$ for appropriate index p . The associated maximal operator is also considered.