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On the T1 theorem for compactness of Calderón-Zygmund operators

We give a new formulation of the T1 theorem for compactness of Calderón-Zygmund singular integral operators. We prove that a Calderón-Zygmund operator T is compact on $L^2(\mathbb{R}^n)$ if and only if $T1, T^*1 \in \mathsf{CMO}(\mathbb{R}^n)$ and T is weakly compact. Compared to existing compactness criteria, our characterization more closely resembles David and Journé's classical T1 theorem for boundedness and follows from a simpler argument.