TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

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A Tb Theorem for compactness and boundedness of singular integral operators

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Abstract: I will introduce a Tb Theorem that characterizes all Calderón-Zygmund operators that extend compactly on $L^p(\mathbb{R}^n)$ by means of testing functions as general as possible. In the classical theory of boundedness, the testing functions satisfy a non-degeneracy property called accretivity, which essentially implies the existence of a positive lower bound for the absolute value of the averages of the testing functions over all dyadic cubes. However, in the the setting of compact operators, due to their better properties, the hypothesis of accretivity can be relaxed to a large extend. As a by-product, the results also describe those Calderon-Zygmund operators whose boundedness can be checked with non-accretive testing functions.