TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, February 12th, 2024, 2:30 p.m.

Multiplier Weak-Type Inequalities for Maximal Operators and Singular Integrals

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Abstract: We discuss a kind of weak-type inequality for the Hardy-Littlewood maximal operator and Calderón-Zygmund singular integral operators that was first studied by Muckenhoupt and Wheeden and later by Sawyer. This formulation treats the weight for the image space as a multiplier, rather than a measure, leading to fundamentally different behavior; in particular, as shown by Muckenhoupt and Wheeden, the class of weights characterizing such inequalities is strictly larger than A_p. In this talk, I will discuss quantitative estimates obtained for A_p weights, $p > 1$, that generalize those results obtained by Cruz-Uribe, Isralowitz, Moen, Pott and Rivera-Ríos for $p = 1$, both in the scalar and matrix weighted setting. I will also discuss recent work on the characterization of those weights for which these inequalities hold for the maximal operator.