JOHN-OLIVER MACLELLAN, The University of Alabama

Necessary Conditions for Two Weight Weak Type Norm Inequalities for Multilinear Singular Integral Operators

A central problem in harmonic analysis is to characterize the pairs of weights (u, v) so that a Calderón Zygmund operator maps $L^p(v) \to L^p(u)$. In this talk we discuss the analogous problem for multilinear Calderón Zygmund operators. In particular we establish necessary conditions for weak type norm inequalities provided the kernel satisfies a weak non-degeneracy condition. As an application of our techniques, we show that in general a multilinear Calderón Zygmund does not satisfy a two-weight strong endpoint estimate. (Joint with David Cruz-Uribe.)