RODOLFO H. TORRES
University of Kansas

New maximal functions and commutator and weighted estimates for the multlinear Caldern-Zygmund theory

We will present recent results about a multi(sub)linear maximal operator smaller that the m-fold product of the Hardy-Littlewood maximal function. This operator can be used to obtain a precise control on multilinear singular integral operators of Caldern-Zygmund type. This allows us to build a theory of weights intrinsically adapted to multilinear operators. Also, a (log) variant of the operator can be employed to study certain commutators of multilinear Calderon-Zygmund operators with BMO functions. As a consequence we obtain the optimal range of strong type estimates, a sharp end-point estimate, and weighted norm inequalities involving both the clas- sical Muckenhoupt weights and the new multilinear ones for these commutators too.

This is joint work with A. Lerner, S. Ombrosi, C. Perez and R. Trujillo-Gonzalez.