

1092-42-264

**Eric Stachura\*** ([eric.stachura@temple.edu](mailto:eric.stachura@temple.edu)). *A Unified Approach to Weighted Estimates of Commutators with BMO Functions.*

Since the introduction of commutators by Calderón in the early 1960's, commutators of singular integral operators with certain functions have played an important role in Harmonic Analysis. Even now there is a plethora of results concerning commutators in the literature. Independently, for the same operators, it is common to find a well established weighted norm theory. An important step in estimating commutators in  $L^p$  was initiated by Coifman, Rochberg, and Weiss in 1976 when they used the tools of Complex Analysis to obtain  $L^p$  estimates for commutators of Calderón-Zygmund operators with functions belonging to the John-Nirenberg space of Bounded Mean Oscillation. Since then, much has been done in this direction, but all at an ad-hoc level. In this talk I will discuss how the weighted estimates for commutators follow nearly automatically from the weighted norm theory. Thus, provided the weighted norm inequalities have been proved, the ad-hoc arguments for the commutators may be skipped. The general method of proof we give allows for applications to many families of operators, some of which include Calderón-Zygmund operators, the Riesz Transforms, and operators associated with the Kato conjecture. This is joint work with Arpad Benyi, José María Martell, Kabe Moen, and Rodolfo Torres. (Received August 12, 2013)