1063-47-108 **Maria Cristina Pereyra*** (crisp@math.unm.edu), Department of Mathematics and Statistics, MSC03 2150, 1 University of New Mexico, Albuquerque, NM 87131, and **Carlos Perez** and **DaeWon Chung**. *Sharp weighted inequalities for commutators.*

The A_2 conjecture says that all Calderón-Zygmund singular integral operators must obey a linear bound in $L^2(w)$ with respect to the A_2-characteristic of the weight. Right now this is known to be true for convolution operators with sufficiently smooth kernel. This includes Hilbert, Riesz and Beurling transforms. However various groups are working on this conjecture and Tuomas Hytönen just posted in the arXiv what seems to be a proof of the conjecture.

The commutator $[b, T]$ of a BMO function b with a CZ SIO T is more singular than the operator T, for example it is not of weak-type (1,1). If the operator T obeys linear bounds in weighted $L^2(w)$ with respect to the A_2-characteristic of the weight w then the commutator $[b, T]$ obeys quadratic bounds in $L^2(w)$ with respect to the A_2-characteristic of the weight. Extrapolation gives results for $L^p(w)$. The proof follows the classical Coifman-Rochberg-Weiss argument. Same proof shows that for higher order commutators the power increases by one each time. The results are optimal for all $1 < p < \infty$, as examples involving the Hilbert, Riesz and Beurling transforms show. (Received August 16, 2010)