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**Maria Cristina Pereyra\*** ([crisp@math.unm.edu](mailto:crisp@math.unm.edu)), Department of Mathematics and Statistics, MSC03 2150, 1 University of New Mexico, Albuquerque, NM 87131, and **Daewon Chung** ([midiking@math.unm.edu](mailto:midiking@math.unm.edu)), Department of Mathematics and Statistics, MSC03 2150, 1 University of New Mexico, Albuquerque, NM 87131. *Towards sharp bound for the commutator on weighted Lebesgue spaces.*

In this talk we discuss boundedness properties of the commutator  $[b, H]$  on weighted spaces  $L^p(w)$ , where  $b$  is a BMO function and  $H$  is the Hilbert transform. It is known that if the weight  $w$  is in the Muckenphout  $A_p$ -class, then the commutator is bounded in  $L^p(w)$ , what is not known yet is the optimal rate of dependence of the operator norm on the  $A_p$ -characteristic of the weight. (Received September 01, 2009)