1038-46-6   **Chaoyuan Mary Liu*** (`mary.liu@eku.edu`), Department of Mathematics and Statistics, Eastern Kentucky University, Richmond, KY. *Applications of interpolation theorems.* Preliminary report.

First, we prove the appropriate sublinear operator interpolation theorems between the weak type $(1, 1)$ estimate and the strong estimate from L^∞ to BMO. Then, we prove that square functions, oscillation operators, and variation operators for Lebesgue derivatives map L^∞ to BMO and are of strong type (p, p) which $1 < p < \infty$ by the previous interpolation theorems. Finally, we prove that these operators are of strong type (p, p) where $1 < p < \infty$ for ergodic averages in higher dimensional space by the A. P. Calderón Transfer Principle. (Received February 11, 2008)