

**Meeting:** 1000, Albuquerque, New Mexico, SS 12A, Special Session on Regularity in PDEs and Harmonic Analysis

1000-42-151      **Steven C. Hofmann\*** (hofmann@math.missouri.edu), Department of Mathematics, University of Missouri, Columbia, MO 65211. *Carleson measures and elliptic operators.*

We discuss a general "extrapolation principle" for Carleson measures. Roughly, the idea is that if one wants to prove some scale invariant estimate on cubes (e.g., a reverse holder estimate for a weight, or a Carleson measure estimate), it is enough to show that this estimate is controlled by some Carleson measure  $\mu$ , in the sense that the desired bound holds in regions where  $\mu$  is small in some suitable sense. The technique was introduced by John Lewis in order to solve the Dirichlet problem for the heat equation in domains with a time-varying boundary (although we note that there are related ideas present in the earlier work of Carleson, and of David and Semmes), and has found further application to both parabolic and elliptic equations, and in particular to the analytic perturbation theory for Kato's square root operators. In this talk, we present a recent refinement of this circle of ideas, which is joint work with J. Martell, in which we formalize a general extrapolation principle for proving reverse holder estimates. We then show how this general principle can be used, for example, to reprove the elliptic perturbation results of R. Fefferman, Kenig and Pipher. (Received August 23, 2004)