The Oliver Club

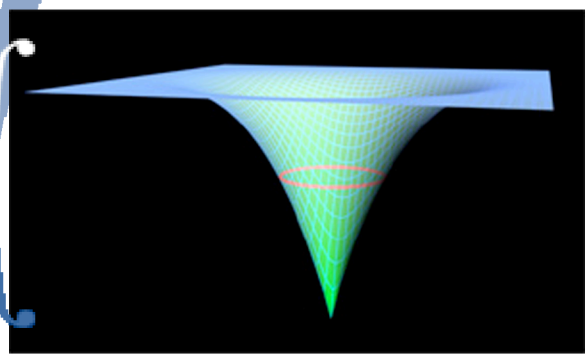
www.math.cornell.edu/~oliver/

Steven Hofmann, University of Missouri-Columbia

Local Tb Theorems and Applications in PDE

Singular integral operators ("SIOs") arise often in complex analysis and in the theory of partial differential equations. For example a prototypical SIO is the Hilbert Transform, which relates the real and imaginary parts of the boundary values of an analytic function in the upper half plane. L^2 boundedness is the fundamental desired property of SIOs. The Hilbert transform is of convolution type, so one can verify L^2 boundedness by exploiting the fact that convolution operators are "diagonalized" by the Fourier transform.

On the other hand, there are many other important examples of SIOs, arising, e.g., in the theory of variable coefficient elliptic PDE, and in the theory of analytic functions in domains with non-smooth boundaries, which are not *of convolution type. In this talk, we shall present a survey of progress on the development of criteria to verify the L^2 boundedness of non-convolution SIOs, and we shall discuss some applications.*



Thursday, September 25, 2008
at 4:25 PM in 406 Malott Hall

Refreshments will be served at 3:55 PM in the Mathematics Department lounge (532 Malott Hall).