
Timothy Chartier
Adaptive multigrid via subcycling on complementary grids

Department of Mathematics
Davidson College
P.O. Box 6908
Davidson
NC 28035-6908
`tichartier@davidson.edu`
Edmond Chow

Considerable efforts in recent multigrid research have concentrated on algebraic multigrid schemes. A vital aspect of this work is uncovering algebraically smooth error components in order to construct effective multigrid components. Adaptive or self-correcting multigrid schemes expose algebraically smooth error, analyze the effectiveness of the resulting multigrid algorithm and adjust the cycling as needed in order to improve the rate toward convergence. This talk will discuss an adaptive multigrid method that uses relaxation and subcycling on complementary grids as an evaluative tool in correcting multigrid cycling. The particular implementation of this idea manages smooth error in a manner analogous to spectral AMGe. Numerical results will be included.