1018-35-72 **Adam M Oberman*** (aoberman@sfu.ca), 203-1215 Beach Avenue, Vancouver, BC V6E 1V5, Canada. *Building solutions to nonlinear elliptic and parabolic partial differential equations.*

Nonlinear elliptic and parabolic partial differential equations (PDEs) appear in problems from science, engineering, atmospheric/ocean studies, image processesing, and mathematical finance.

The theory of viscosity solutions has been enormously successful in addressing the problems of existence, uniqueness, and stability for a wide class of such equations.

A problem which has not been addressed with as much success is the construction of solutions. In some cases, exact solutions formulas exist, but for the most part, solutions must be found numerically.

We will present convergent schemes and computational results for: level set motion by mean curvature, the convex hull, the infinity Laplacian, as well as examples from math finance and control theory.

We will present results which allow schemes to be built for a wide class of equations. (Received February 26, 2006)