1099-35-19 **Granville Sewell*** (sewell@utep.edu), Mathematics Dept., UTEP, El Paso, TX 79968.

Mathematical Finance Applications of PDE2D.

PDE2D (www.pde2d.com) is a very general-purpose partial differential equation solver which has been used for a wide range of mathematical finance applications, for example, Juergen Topper's book *Financial Engineering with Finite Elements* [John Wiley 2005] uses it in almost every section of the book.

Here we look at the use of PDE2D to solve problems in two papers,

1. "Numerical Schemes for Option Pricing in Regime-Switching Jump Diffusion Models", I.Florescu, R. Liu, M.Mariani and Granville Sewell, to appear in International Journal of Theoretical and Applied Finance.

2. "Numerical Methods applied to Option Pricing Models with Transaction Costs and Stochastic Volatility," M.Mariani, I.SenGupta and Granville Sewell, to appear in Quantitative Finance.

The PDE systems in the first paper are actually time-dependent partial integro-differential involving integrals of the unknown functions. In the second paper, a very highly nonlinear PDE is solved, which involves square roots of second derivatives.

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