Department of Mathematical Sciences Colloquium

Granville Sewell

The World's Easiest-to-use General Purpose PDE Solver

PDE2D's new Graphical User Interface allows extremely easy access to the PDE2D collocation finite element methods, which solve general systems of nonlinear steady-state, time-dependent and eigenvalue partial differential equations, in 1D intervals and in a wide range of simple 2D and 3D regions. The new GUI is impossible to beat in terms of ease-of-use, because it requires the user to supply only the absolute minimum of information necessary to describe the PDEs and boundary conditions. Nevertheless, at the end, the user still has the option of resetting many options given default values by the GUI, or adding further code. The fact that a collocation method is used rather than the much more commonly-used Galerkin finite element method is another factor contributing to ease-of-use, as will be shown.

The collocation methods solve very general PDEs, with very general boundary conditions; the one limitation is they cannot handle completely general 2D or 3D domains. Completely general 2D domains can still be handled by PDE2D, but only through the interactive driver–an interface with is also quite easy to use, but not comparable to the GUI.

Friday, September 21, 2007 at 3 pm in Bell Hall 143
The University of Texas at El Paso

Refreshments will be served in front of the colloquium room, 15 minutes before the start of the colloquium.

For further information, please contact Dr. Pavel Solin, Bell Hall 220. Phone: (915) 747-6770, email: `solin@utep.edu`.