1067-65-1837 **Robert D French*** (roberto.frances@gmail.com), 1351 Avondale Drive, Apt B15, Clarksville, TN 37043, **Casey L McKnight** (mcknightcasey@gmail.com), 1351 Avondale Drive, Apt B15, Clarksville, TN 37043, and **Ben Ntatin** (ntatinb@apsu.edu). *A Simple Parallel Implementation of the Finite Element Method Using Linear Geometries.*

The Finite Element Method is a technique for numerically solving partial differential equations. The fundamental idea is that a continuous solution to the governing PDE modeling a physical system can be approximated by subdividing the domain into a set of geometrical elements, which are triangles for a two-dimensional domain. We then approximate the solution at the nodal points. We discuss some geometrical aspects of the finite element method and present a parallel computing package for solving two-dimensional, second order, linear PDEs. To demonstrate the effectiveness of this parallel computing technique, we treat the convection-diffusion-reaction equation at a very fine precision, and show improvements in both time and mesh size. (Received September 22, 2010)