PSM FOR PARTIAL DIFFERENTIAL EQUATIONS. Joseph D. Rudmin, School of Integrated Sciences, James Madison University. While the Parker Sochacki Method (PSM) has been proven to be a fast and efficient general method of solving initial value (IV) ordinary differential equations (ODEs), challenges remain for applying PSM in general to partial differential equations (PDEs), particularly near poles of coordinate systems. One can avoid such poles by changing coordinate system near poles. Since applied PDEs usually are boundary value (BV) problems, a simple general method using "successive binary approximation" is shown to solve BVODEs by PSM, consistent with its adaptive-step/adaptive-order algorithm. While the resources required to solve an IVODE by PSM scales as the square of the order times the number of steps, for a BVODE the scaling of required resources also has a term which is the log of the tolerance times the number of steps in the domain. The resources for a BVPDE are the product of the resources for the BVODEs for each dimension of its coordinate system. While expensive, PSM for PDEs offers significant improvement over traditional finite element methods. Author contact: rudminjd@jmu.edu