1067-35-853 **Necibe Tuncer*** (tuncer@ufl.edu), 309 Little Hall, Department of Mathematics, Gainesville, FL 32611. *Finite element approximation of reaction diffusion systems on arbitrary surfaces.*

In this research we develop and analyze two numerical methods to approximate solutions of reaction diffusion systems defined on arbitrary surfaces. In particular, we are interested in reaction diffusion systems that models pattern formation on evolving surfaces. Such systems have numerous applications; examples include patterns on seashells and tropical fish, tumor growth and cell membrane deformation. The power of both of these numerical methods are that they are easy to implement, and all computations are done in logically rectangular coordinates. (Received September 15, 2010)