

1077-35-1927 **Necibe Tuncer***, necibe-tuncer@utulsa.edu. *Pattern Formation For Reaction Diffusion Systems On Arbitrary Surfaces.*

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 model pattern formation on arbitrary surfaces. Such systems have numerous applications; examples include patterns on seashells and tropical fish, and butterfly wing pigmentation. One of the two methods we propose is based on radially projected finite elements, and the second method is based on projected surface finite elements. 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 21, 2011)