

1079-35-338

Necibe Tuncer*, necibe-tuncer@utulsa.edu. *Radially Projected Finite Elements for Pattern Formation on Spheroidal Surfaces*. Preliminary report.

We develop and analyze a numerical method 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. The method we propose is based on radially projected finite elements. The power of the numerical method is that it is easy to implement, and all computations are done in logically rectangular coordinates. (Received January 17, 2012)