

1145-VN-851

KC Patidar* (kpatidar@uwc.ac.za), Department of Mathematics, University of the Western Cape, Private Bag X17, Bellville, 7535, South Africa, and **A Ramanantoanina**. *Comparison of non-standard finite difference methods for cross-diffusion models.*

Cross-diffusion models describe a variety of problems in mathematical ecology. In particular, the dynamics of interacting species are classically modelled by using Lotka-Volterra differential equations. However, when investigating spatial dynamics, one usually considers individual movements which in turn lead to reaction-diffusion equations some of which yield cross-diffusion models. Standard numerical methods often fail in providing dynamically consistent numerical solutions for strongly-coupled equations that arise from cross-diffusion. To this end, we aim to design a class on nonstandard finite difference method that can cope with the requirements of the dynamics of the solution. We then analyse some of these schemes for relevant properties and present comparative numerical results. (Received September 16, 2018)