

*Homoclinic solutions in Bazykin's predator-prey model*

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In this paper we study the homoclinic bifurcations rooted at a (nondegenerate) Bogdanov-Takens (BT) point in the Bazykin's predator-prey model. Namely, we derive an explicit approximation to the homoclinic solutions rooted there. The paper describes the use of the symbolic manipulation language MAPLE for the analysis of the homoclinic bifurcations phenomena in smooth systems of ODEs. It shows how symbolic manipulation language can effectively used to derive explicit expressions for the homoclinic solutions rooted at a (nondegenerate) BT bifurcation.