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PATTERN FORMATION FOR A PREDATOR-PREY MODEL WITH HOLLING TYPE II FUNCTIONAL RESPONSE AND CROSS-DIFFUSION

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This paper deals with a predator-prey model with modified Leslie-Gower and Holling type II functional response and cross-diffusion in a bounded domain with Neumann boundary condition. By using the bifurcation theory, the conditions of Hopf and Turing bifurcations in a spatial domain are obtained. We carry out some numerical simulations in order to support our theoretical results and to interpret how biological processes a ect spatio-temporal pattern formation which show that it is useful to use the predator-prey model to detect the spatial dynamics in the real life.

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