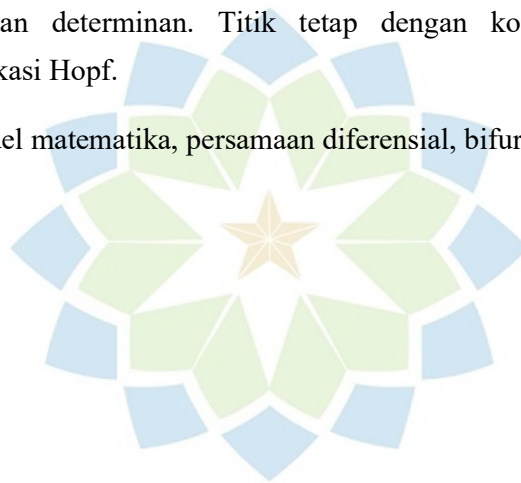# ABSTRAK

Nama   : Bahroni

Jurusan   : Matematika

Judul   : BIFURKASI HOPF PADA MODEL *HASTINGS-POWELL*

Model *Hastings-Powell* merupakan model yang menggambarkan hubungan antara tiga spesies, yaitu *prey*, *predator*, dan *top-predator*. Pada model ini titik tetap ditentukan dengan metode nilai eigen. Kestabilan titik tetap ditinjau dengan kriteria trace dan determinan. Titik tetap dengan kondisi $\alpha_1 > \frac{\delta_1\beta_1{}^2 + \delta_1\beta_1}{(\beta_1\ 1)}$ mengalami bifurkasi Hopf.

Kata kunci : model matematika, persamaan diferensial, bifurkasi hopf, kestabilan.

ABSTRACT

Name   : Bahroni

Department : Mathematic

Title   : HOPF BIFURCATION IN THE *HASTINGS-POWELL* MODEL

Hastings-Powell model is a model that describes the relationship between the three species, that is prey, predators, and top-predators. In this model a fixed point determined by the method of eigenvalues. The stability of a fixed point in terms of trace and determinant criteria. Fixed point with the condition $\alpha_1 > \frac{\delta_1\beta_1{}^2 + \delta_1\beta_1}{(\beta_1\ 1)}$ thought to have Hopf bifurcation.

Keywords : mathematical modeling, differential equations, Hopf bifurcation, stability.
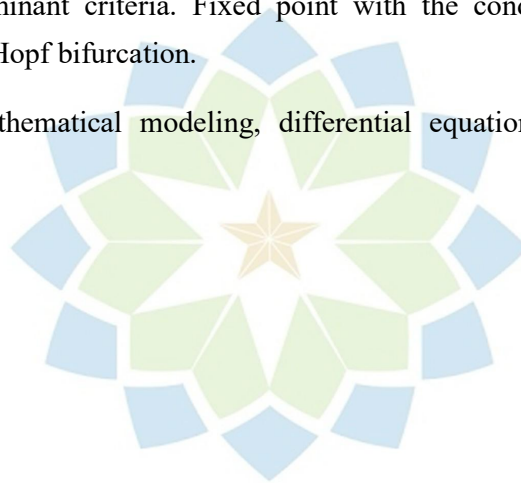
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