

**Xu, Rui; Chaplain, M. A. J.**

**Persistence and global stability in a delayed Gause-type predator-prey system without dominating instantaneous negative feedbacks.** (English) Zbl 1013.34074

J. Math. Anal. Appl. 265, No. 1, 148-162 (2002).

For the following predator-prey system without dominating instantaneous negative feedbacks

$$\begin{aligned}\dot{x}_1 &= x_1(t) \left( a_1 - a_{11}x_1(t - \tau_1) - a_{12} \frac{x_2(t)}{m + x_1(t)} \right), \\ \dot{x}_2 &= x_2(t) \left( -a_2 + a_{21} \frac{x_1(t - \tau_2)}{m + x_1(t - \tau_2)} - a_{22}x_2(t - \tau_3) \right),\end{aligned}$$

the authors obtain sufficient conditions for uniform persistence, and local and global asymptotic stability of a positive equilibrium.

Reviewer: [Leonid Berezanski \(Beer-Sheva\)](#)

**MSC:**

[34K20](#) Stability theory of functional-differential equations

[92D25](#) Population dynamics (general)

Cited in **9** Documents

**Keywords:**

[predator-prey system](#); [delay](#); [persistence](#); [stability](#)

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