

论文

# STABLE POSITIVE PERIODIC SOLUTIONS OF THE PERIODIC COMPETITIVE SYSTEMS

LI Hua (1), CHEN Lansun (2)

(1)Department of Applied Mathematics, Xidian University, China;(2)Institute of Mathematics, Academia Sinica, Beijing 100080, China

收稿日期 修回日期 网络版发布日期 接受日期

**摘要** Consider the general competitive system  $\dot{u}=uM_1(t;u,v)$ ,  $\dot{v}=vM_2(t;u,v)$ , where  $\partial M_1/\partial v < 0$ ,  $\partial M_2/\partial u < 0$ ,  $M_i(t+T; u,v) = M_i(t; u, v)$ ,  $i = 1, 2$ . under sonic conditions, it is shown that the system has some positive periodic solutions. The theorem to assess the asymptotic stability and the uniqueness of the periodic solution is obtained by using the monotonic and strongly concave operator. Some conditions for global asymptotic stability of the periodic solution are also obtained.

**关键词** [Periodic competitive system](#), [periodic so](#)

分类号

# STABLE POSITIVE PERIODIC SOLUTIONS OF THE PERIODIC COMPETITIVE SYSTEMS

LI Hua(1),CHEN Lansun(2)

(1)Department of Applied Mathematics, Xidian University, China;(2)Institute of Mathematics, Academia Sinica, Beijing 100080, China

**Abstract** Consider the general competitive system  $\dot{u}=uM_1(t;u,v)$ ,  $\dot{v}=vM_2(t;u,v)$ , where  $\partial M_1/\partial v < 0$ ,  $\partial M_2/\partial u < 0$ ,  $M_i(t+T; u,v) = M_i(t; u, v)$ ,  $i = 1, 2$ . under sonic conditions, it is shown that the system has some positive periodic solutions. The theorem to assess the asymptotic stability and the uniqueness of the periodic solution is obtained by using the monotonic and strongly concave operator. Some conditions for global asymptotic stability of the periodic solution are also obtained.

**Key words** [Periodic competitive system](#) [periodic solution](#) [global asymptotic stability](#) [concave operator](#)

DOI:

通讯作者

## 扩展功能

### 本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(0KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

### 服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

### 相关信息

- ▶ [本刊中 包含“Periodic competitive system, periodic so”的 相关文章](#)
- ▶ 本文作者相关文章
- [LI Hua](#)
- [CHEN Lansun](#)