

论文

## BIFURCATIONS FROM HOMOCLINIC ORBITS FOR SECOND ORDER HAMILTONIAN SYSTEM

WU Shaoping(1), YANG Haitao(2)

(1)Department of Mathematics, Zhejiang University, Hangzhou 310027, China;(2)Department of Mathematics, Zhejiang University, Hangzhou 310027, China

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**摘要** An existence theorem of homoclinic orbit is given for second order Hamiltonian system  $-\ddot{x}(t) + a(t)x(t) - W_x(t, x(t)) = \lambda x(t)$  when  $\lambda = \lambda_1$ , where  $\lambda_1$  is the first eigenvalue of operator  $Lx = \ddot{x} - a(t)x$ , and  $W_x(t, x)$  is sublinear growth in  $x \in \mathbb{R}^n$ . When  $W_x(t, x)$  is odd in  $x$ , infinitely many distinct pairs of homoclinic orbits are obtained and the bifurcations occur for each  $\lambda \leq \lambda_1$ .

**关键词** [Bifurcations, homoclinic orbit, Hamilton](#)

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**Abstract** An existence theorem of homoclinic orbit is given for second order Hamiltonian system  $-\ddot{x}(t) + a(t)x(t) - W_x(t, x(t)) = \lambda x(t)$  when  $\lambda = \lambda_1$ , where  $\lambda_1$  is the first eigenvalue of operator  $Lx = \ddot{x} - a(t)x$ , and  $W_x(t, x)$  is sublinear growth in  $x \in \mathbb{R}^n$ . When  $W_x(t, x)$  is odd in  $x$ , infinitely many distinct pairs of homoclinic orbits are obtained and the bifurcations occur for each  $\lambda \leq \lambda_1$ .

**Key words** [Bifurcations](#) [homoclinic orbit](#) [Hamiltonian system](#) [variational method](#)

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