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Homoclinic and Periodic Orbits Arising Near the Heteroclinic Cycle Connecting Saddle-focus and Saddle Under Reversible Condition

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摘要
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Abstract In this paper, we study the dynamical behavior for a 4-dimensional reversible system near its heteroclinic loop connecting a saddle-focus and a saddle. The existence of infinitely many reversible 1-homoclinic orbits to the saddle and 2-homoclinic orbits to the saddle-focus is shown. And it is also proved that, corresponding to each 1-homoclinic (resp. 2-homoclinic) orbit Γ, there is a spiral segment such that the associated orbits starting from the segment are all reversible 1-periodic (resp. 2-periodic) and accumulate onto Γ. Moreover, each 2-homoclinic orbit may be also accumulated by a sequence of reversible 4-homoclinic orbits.

Key words   reversible condition   homoclinic orbit   periodic orbit   saddle-focus

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