Periodic Solution of a Convex Subquadratic Hamiltonian System

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Abstract: In this paper we study the periodic solutions of an autonomous Hamiltonian system

$$(\mathcal{H}) \qquad\qquad \dot{x} = JH'(x)$$

where H is convex and superquadratic.

We prove by using the Ambrosetti–Rabinowitz theorem and perturbation techniques that for all $T > 0$ the system $(\mathcal{H})$ has a nontrivial T-periodic solution.

Keywords: *Hamiltonian system; periodic solutions; Palais–Smale condition.*

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