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**Hossein Tehrani\*** (tehran@unlv.nevada.edu) and **David Costa**. *On Homoclinic Solutions for a Class of Singular Hamiltonian Systems.*

We consider a second order singular Hamiltonian system:

$$u'' + \nabla_u W(t, u) = 0$$

where  $W(t, u) = a(t)V(u)$ , the function  $a : \mathbb{R} \rightarrow \mathbb{R}$  is a positive continuous  $T$ -periodic function and the nonpositive potential  $V : \mathbb{R}^N/q \rightarrow \mathbb{R}$  has a strict global maximum at zero:  $V(u) < V(0) = 0$  for  $u \neq 0$ , and  $\lim_{x \rightarrow q} V(x) = -\infty$ . Existence of homoclinic orbits to zero is studied. (Received July 30, 2011)