5007-37-125 **Naiara Vergian de Paulo*** (naiaravp@ime.usp.br), Rua do Matao, 1010, Cidade Universitaria, Sao Paulo, 05508090, Brazil. *Hamiltonian dynamics near a saddle-center equilibrium.*

Let $H : R^4 \to R$ be a Hamiltonian function with associated Hamiltonian vector field $X_H = J_0 \nabla H$, where

$$J_0 = \begin{pmatrix} 0 & I \\ -I & 0 \end{pmatrix}$$

and $I = I_{2\times 2}$ is the identity matrix. An equilibrium point p_c of X_H is called a saddle-center if the matrix $J_0\mathrm{HessH}(p_c)$ has two real eigenvalues α and $-\alpha$ and two purely imaginary eigenvalues ωi and $-\omega i$, with $\alpha, \omega > 0$.

We have analyzed the behavior of the linearized flow along trajectories of X_H passing near a saddle-center equilibrium p_c in order to estimate the Conley-Zehnder index of periodic orbits on certain energy levels of H. More specifically, by using Moser's normal form for saddle-center equilibria and a suitable trivialization $\{\nabla H, X_1, X_2, X_H\}$ of R^4 defined for regular points of H, we prove that there exists a neighborhood U of p_c such that for each $n \in N$ we are able to construct $U_n \subset U$ neighborhood of p_c satisfying the following: if $z(t)$ is an orbit of X_H with $z(0) \in U_n$ and I is the maximal interval containing $t = 0$ in which $z(I) \subset \overline{U}$, then the linearized flow along $z(I)$ restricted to $\mathrm{span}\{X_1, X_2\} \setminus \{0\}$ turns around $\{0\}$ more than n times. (Received April 30, 2013)