1044-34-111   **Maoan Han*** (`mahan@shnu.edu.cn`), The Institute of Mathematics, Shanghai Normal University, Shanghai, 200234, Peoples Rep of China, **Hong Zang**, The institute of Mathematics, Shanghai Normal University, Shanghai, Peoples Rep of China, and **Junmin Yang**, The Institute of Mathematics, Shanghai Normal University, Shanghai, Peoples Rep of China. *Limit cycle bifurcations by perturbing a cuspidal loop in a Hamiltonian system.*

In this paper, we first study the analytical property of the first Melnikov function for general Hamiltonian systems exhibiting a cuspidal loop and obtain its expansion at the Hamiltonian value corresponding to the loop and the expresions of the first coefficients of the expansion. Then by using the expresions of these coefficients we give some conditions for the perturbed system to have 4, 5 or 6 limit cycles in a neighborhood of the loop. As an application of our main results, we consider some polynomial Lienard systems and find 4, 5 or 6 limit cycles. (Received August 26, 2008)

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