From chaos to a more regular behavior
by the perturbation of Hamiltonian systems

R. Cimpoiasu, V.M. Cimpoiasu, R. Constantinescu

University of Craiova, Romania

ABSTRACT

The paper presents a direct approach to the integrability for general autonomous Hamiltonian systems with two degrees of freedom and polynomial potentials, by the determination of a second invariant. A concrete example, the Hénon-Heiles system, will be effectively studied. Also, a new technique to retrieve an integrable system by deforming the constant of motion is proposed.