
Characteristic exponents of periodic solutions of Hamiltonian systems and the necessary conditions of stability

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The article considers Hamiltonian system with a small parameter (the main task of the dynamics in the terminology of Poincare). The structure of the decomposition of the characteristic exponents of periodic solutions in series in integer and fractional powers of the small parameter was investigated. The main members in these decompositions are obtained, necessary stability conditions of periodic decisions were found.

Keywords: *Hamiltonian system, the Poincare method, periodic and quasi-periodic motions, characteristic exponents, stability.*

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