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RESPONSE SOLUTIONS OF 2-DIMENSIONAL ELLIPTIC DEGENERATE QUASI-PERIODIC SYSTEMS WITH SMALL PARAMETERS

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Abstract

This paper concerns quasi-periodic perturbations with parameters of 2-dimensional degenerate systems. If the equilibrium point of the unperturbed system is elliptic-type degenerate. Assume that the perturbation is real analytic quasi-periodic with diophantine frequency. Without imposing any assumption on the perturbation, we can use a path of equilibrium points to tackle with the Melnikov non-resonance condition, then by the Leray-Schauder Continuation Theorem and the Kolmogorov-Arnold-Moser technique, it is proved that the equation has a small response solution for many sufficiently small parameters.

Keywords

Quasi-Periodic Systems, KAM-Iteration, Degenerate Equilibrium Point, Response Solution