Melnikov Function associated to Morse Real Polynomials

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Abstract

It is known that the Principal Melnikov Function is generically an Abelian integral. We give a sufficient condition on monodromy to ensure that it is an Abelian Integral also in Non generic cases.

In non generic cases it is an iterated integral [1]. In [2], [3], the author gives a precise description of the Principal Melnikov Function, an iterated integral of length at most 2, involving a logarithmic function with only one ramification at a point at infinity. We extend this result to some isomonodromic families of real Morse polynomial [4].

Keywords: Abelian integrals, Melnokov functions, First Return Map, Monodromy.

References

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