

Corrigendum for the paper “Invariant tori for nearly integrable Hamiltonian systems with degeneracy”

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In the paper [1], the authors obtain a KAM theorem for nearly integrable hamiltonian systems under the Rüssmann’s non-degeneracy condition, which is known to be sharpest one for small divisor conditions.

However, the Remark 1.3 is wrong because we have ignored the null set $\Omega - \Omega_*$, which may contain zeros of ω of high order such that (1.4) does not hold for all $p \in \bar{\Omega}$. The Remark 1.3 might mislead the readers that the condition (1.5) of Theorem B is equivalent to the Rüssmann’s non-degeneracy condition. Actually, the Rüssmann’s non-degeneracy condition is equivalent to the condition (1.4) of Theorem A as proved in [1].

Under the Rüssmann’s non-degeneracy condition (1.4), as proved in the Remark 3.1 the condition (1.5) holds if we replace $n - 1$ by a sufficiently large number N depending on h , and then the conclusion of Theorem B remains valid if in the measure estimate $n - 1$ is replaced by N .

Reference

1. Xu, J., You, J., Qiu, Q.: Invariant tori of nearly integrable Hamiltonian systems with degeneracy. *Math. Z.* **226**, 375–387 (1997)

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