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Normal forms of analytic perturbations of quasihomogeneous vector fields

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SUMMARY

We study germs of holomorphic vector fields which are “higher order” perturbations of a quasihomogeneous vector field in a neighborhood of the origin of \mathbb{C}^n , fixed point of the vector fields. We define a “diophantine condition” on the quasihomogeneous initial part S which ensures that if such a perturbation of S is formally conjugate to S then it is also holomorphically conjugate to it. We study the normal form problem relatively to S . We give a condition on S that ensure that there always exists an holomorphic transformation to a normal form. If this condition is not satisfied, we also show, that under some reasonable assumptions, each perturbation of S admits a Gevrey formal normalizing transformation.

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