

A Blow-up method for proving integrability of planar polynomial differential systems

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I shall discuss an effective method for proving integrability of the resonant saddles. The method is based on the use of a blow-up transformation and solving the recurrence differential equations using induction. Using this method some open integrability problems for certain resonant saddles are solved.

Reference

- [1] B. Ferčec, J. Giné, *A blow-up method to prove formal integrability for some planar differential equations*, Journal of Applied Analysis and Computation, **8**, No. 6 (2018) 1833–1850.
- [2] B. Ferčec, J. Giné, *Blow-up method to compute necessary conditions of integrability for planar differential systems*, Applied Mathematics and Computation, **358** (2019) 16–24.