

[Lychagin, V. V.](#)

Singularities of solutions, spectral sequences and normal forms of Lie algebras of vector fields. (Russian) [Zbl 0643.58039](#)

Izv. Akad. Nauk SSSR, Ser. Mat. 51, No. 3, 584-612 (1987).

This paper gives a general method of finding conditions of formal solvability of systems of differential equations in a class of functions with singularities. The author investigates here a formal linearization of an action of Lie algebra of vector fields; in particular the algebras of contact and Hamiltonian vector fields are considered. For a semisimple, reductive or commutative Lie algebra he obtains conditions for a formal equivalence to imply a C^∞ - or C^ω - equivalence.

The results of this paper were announced in *Dokl. Akad. Nauk SSSR* 251, 794-799 (1980; [Zbl 0475.58026](#)) and *Usp. Mat. Nauk* 38, No.5(233), 199-200 (1983; [Zbl 0552.58008](#)).

Reviewer: [W.Mozgawa](#)

MSC:

[58J99](#) Partial differential equations on manifolds; differential operators
[17B65](#) Infinite-dimensional Lie (super)algebras
[17B56](#) Cohomology of Lie (super)algebras

Cited in **2** Reviews
Cited in **4** Documents

Keywords:

spectral sequence; cohomology of Lie algebra; Gel'fand-Fuks cohomology; formal solvability