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Nonexistence of global solutions for a class of complex vector fields on two-torus. (English)

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Summary: The goal of this paper is study the global solvability of a class of complex vector fields of the special form $L = \partial/\partial t + (a + ib)(x)\partial/\partial x$, $a, b \in C^\infty(S^1; \mathbb{R})$, defined on two-torus $\mathbb{T}^2 \cong \mathbb{R}^2/2\pi\mathbb{Z}^2$. The kernel of transpose operator tL is described and the solvability near the characteristic set is also studied.

MSC:

[35F10](#) Initial value problems for linear first-order PDEs

[35A21](#) Singularity in context of PDEs

Cited in **9** Documents

Keywords:

global solvability; solvability near the characteristic set; complex vector fields; condition (\mathcal{P}) ; Sussmann orbits; propagation of singularities; bicharacteristics

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