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Solvability in the large for a class of complex vector fields on the cylinder. (English)

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Summary: This work deals with global solvability of a class of complex vector fields of the form $\mathcal{L} = \partial/\partial t + (a(x, t) + ib(x, t))\partial/\partial x$, where a and b are real-valued C^∞ functions, defined on the cylinder $\Omega = \mathbb{R} \times S^1$. Relatively compact (Sussmann) orbits are allowed. The connection with Malgrange's notion of \mathcal{L} -convexity for supports is investigated.

MSC:

35A01 Existence problems for PDEs: global existence, local existence, non-existence

35F05 Linear first-order PDEs

Keywords:

global solvability; condition (\mathcal{P}); Sussmann orbits; \mathcal{L} -convexity for supports

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