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A nonhomogenizable linear transport equation in \mathbb{R}^2

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Abstract. In this paper I investigate the homogenizability of linear transport equations with periodic data. Some results on homogenizability and on the form of the limit are known in literature. In particular, in [9], I proved the homogenizability in the two-dimensional case for nonvanishing functions, and, on the other hand I gave an example of a nonhomogenizable equation in the three-dimensional case. In this paper, I describe an example of a nonhomogenizable equation in two dimensions. As in [9], I study the problem using an equivalent formulation in terms of dynamical system properties of the associated ODEs.

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