

# Distributional chaos for the solutions of certain partial differential equations

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In the study of the dynamics of linear operators defined on Banach spaces, interesting phenomena appear when we consider an underlying infinite-dimensional setting. Several notions of chaos, such as the ones of Devaney and Auslander & Yorke (hypercyclicity), have been already considered for linear operators and  $C_0$ -semigroups of operators that give the solution of certain abstract Cauchy problems. We refer to the monograph by Grosse-Erdmann and Peris [2] for further information on these topics.

The notion of distributional chaos has been recently added to the study of the chaoticity of linear operators [3]. We will report some results concerning how does it works on  $C_0$ -semigroups of operators. In particular several examples of partial differential equations that present this behaviour will be provided. Moreover, we will provide an example of a  $C_0$ -semigroup with a full scrambled set.

## References

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- [3] Félix Martínez-Giménez, Piotr Oprocha, and Alfredo Peris. Distributional chaos for backward shifts. *J. Math. Anal. Appl.*, 351(2):607–615, 2009.