Why computers like Lorenz maps

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We consider how to check the properties of *topological transitivity* and *leo* (*locally eventually onto*) well-known in the theory of dynamical systems using a computer. We concentrate on the study of one dimensional dynamics in the class of Lorenz maps on an interval. We apply our numerical methods to the analysis of the 1D Courbage-Nekorkin-Vdovin model of a single neuron (see [1, 2]).

[1] P. Bartlomiejczyk, F. Llovera, J. Signerska-Rynkowska. Spike patterns and chaos in a map-based neuron model. *Int. J. Appl. Math. Comput. Sci.* **33** (2023), 395–408.

[2] P. Bartlomiejczyk, F. Llovera, J. Signerska-Rynkowska. Analysis of dynamics of a map-based neuron model via Lorenz map. *Chaos* **34** (2024), 043110.