# Completely invariant sets in Lorenz maps

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**Abstract**

Lorenz maps are one-dimensional maps with a single discontinuity, which appear in a natural way as Poincarè maps in geometric models of well known Lorenz attractor. In this talk we will discuss connections between periodic points, completely invariant sets and renormalizations of expanding Lorenz maps. In particular, we will show that $\alpha$-limit sets in Lorenz maps do not have to be completely invariant. We will also obtain similar result for unimodal maps. These results and their consequences indicate the existence of significant gaps in the literature (cf. [1], [2]). This talk will be based on a joint work with Piotr Oprocha.

# References

[1] H. Cui, Y. Ding: *The $\alpha$-limit sets of a unimodal map without homtervals*, Topol. Appl. **157** (2010), 22-28.

[2] Y. Ding: *Renormalization and $\alpha$-limit set for expanding Lorenz maps*, Discrete Contin. Dyn. Syst. **29** (2011) 979–999.