

Entropy beyond actions of uniform lattices

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Measure theoretical entropy is an intensely studied concept with various applications and interpretations. For actions of non-discrete groups, such as \mathbb{R}^d it can be defined by computing the entropy with respect to a uniform lattice, such as \mathbb{Z}^d . Nevertheless, there exist (metrizable and σ -compact) locally compact Abelian groups, such as the additive group of p -adic numbers, that do not contain uniform lattices. In this talk we explore two non-equivalent notions of entropy, which both generalize the notion of entropy from the setting of discrete amenable groups to the setting of unimodular amenable groups. The first concept is defined by using the concept of (thin) Følner nets from [1]. The second concept will be defined by replacing the uniform lattice by a weaker structure, called a Delone set, which exists in every unimodular amenable group. This concept generalizes the concept considered in [2]. We relate these notions to the respective notions of topological pressure, present a link to naive entropy and proof respective versions of Goodwyn's half of the variational principle.

References

- [1] F. M. Schneider and A. Thom: *On Følner sets in topological groups*. Where Published, Compos. Math., 154(7):1333–1361, 2018.
- [2] AT Tagi-Zade: *Variational characterization of topological entropy of continuous transformation groups. case of actions of Rn* . Mathematical notes of the Academy of Sciences of the USSR, 49(3):305–311, 1991.