Info

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Uniformly discrete spaces of bounded geometry

Definition. Uniformly discrete spaces of bounded geometry

A metric space (X, d) is a **UDBG space** if it is

- *(uniformly discrete)*
$$\inf \{d(x, y) | y \neq x \in X\} > 0$$
that is we have
$$d : X \times X \to \{0\} \cup [\alpha, \infty]$$
for $\alpha > 0$.
- *(of bounded geometry)* $\forall r > 0$ there exists $K(r) \in \mathbb{N}$ such that
$$\forall x \in X, \left|B_r^d(x)\right| \leq K(r)$$

Definition. Growth functions, boundaries and Folner sequences in *uniformly discrete spaces of bounded geometry*

Let (X, d) be a UDBG space. Then

- the **growth function** of d is
$$\begin{aligned} \beta_x^d : [0, \infty) &\to [0, \infty) \\ r &\mapsto \left|B_r^d(x)\right| \end{aligned}$$
- the r-**boundary** of a subset $F \subseteq X$ is
$$\partial_r^d F := \{x \in X | \exists f \in F : d(x, f) \leq r\} \setminus F$$
- a **Folner sequence** for X is a sequence $\{F_n\}_{n \in \mathbb{N}}$ of non-empty finite subsets of X such that:
$$\forall r > 0, \lim_{n \to \infty} \frac{\left|\partial_r^d F_n\right|}{|F_n|} = 0$$

The space (X, d) is **Folner amenable** if it admits a Folner sequence.

Current note has 0 direct children and 0 total descendants.

- structures based on sets
  - Metric spaces
    - Uniformly discrete spaces of bounded geometry

And it has 11 siblings.

- structures based on sets
  - Metric spaces
    - Set of all metrics on a set
    - CAT(0)
    - Space of all compact metric spaces up to isometry
    - Y^X
    - Gromov hyperbolic spaces
    - Metric space isometries
    - Constructing more metrics
    - Metric spaces
    - Metric simplicial complexes
    - Metric subspaces
    - Uniformly discrete spaces of bounded geometry