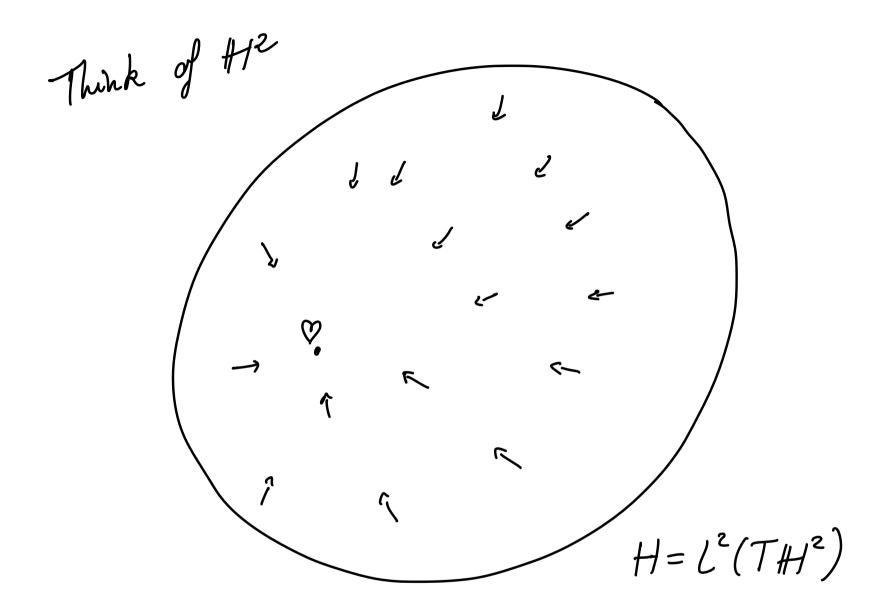
Plan for the talk:

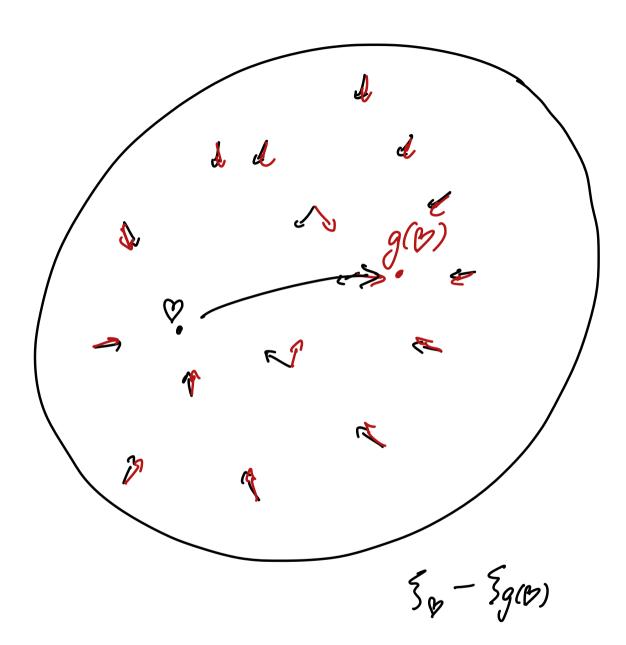
\_8-wedian spaces: définitions & examples

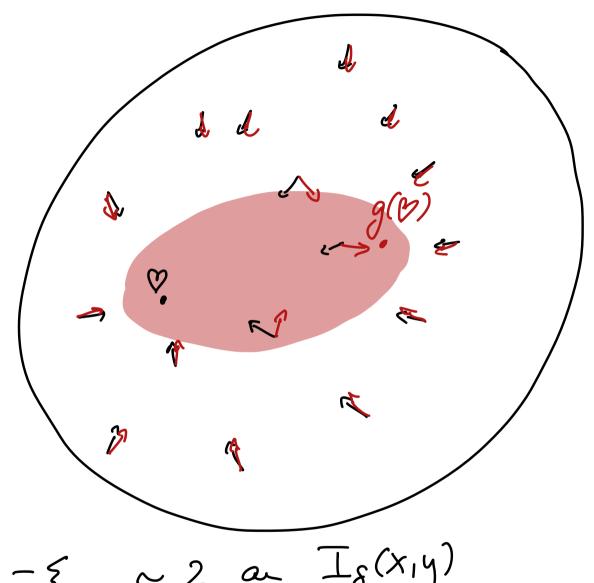
- a conjecture & evidences

- some known cases

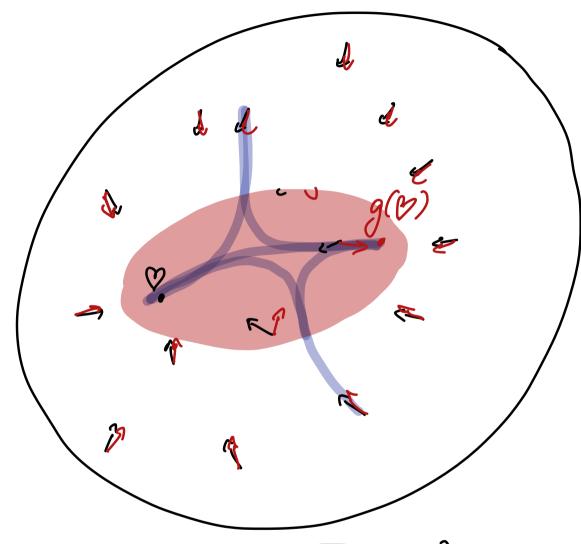
Rank ave & product of rank are lie groups } act properly on a Hilbert space & on a median space f have properly (T), so any action on a Sp(1,1) median space has a bounded orbit. 74(-20) But act nicely on a 5-median space even 8-hyperbolic. Similar proof as for the tree will work!



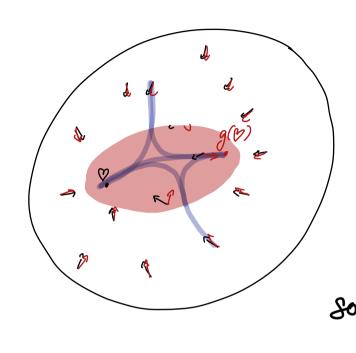




 $\frac{3}{6} - \frac{3}{90}$  ~ 2 an  $\frac{1}{5}(x_1y)$ & very small autside



 $\frac{3}{6} - \frac{3}{9}$   $\frac{3}{6}$   $\frac{3}$ 



30-3g(b) ~ 2 an Is(x1y)

& very small artside
because of thin briangles

that

 $11 \frac{3}{8} - \frac{3}{9}(0) ||_{p} < \infty \qquad \text{for } p \text{ large enough}$ and  $11 \frac{3}{8} - \frac{3}{9}(0) ||_{p} \sim d(0, 9(0)) \xrightarrow{g \to \infty} \infty$ 

Alvarez-loffague: construct some kind of tangent vector using a flow on a uniformly locally fruite hyperbolic graph.

Chatterji - Dahmani - Haetlel - Lecureux: rephrase everything in torns of tangent bundles an a webic space. Chatterji - Dahmani - Haetlel - Lecureux: rephrase everything in torms of tangent bundles as a metric space -

Definition: For (X,d) a metric space with a nice enough measure, a tangent space as X is a Polish space TX, with:

- (a) T: TX X a Borel way
- (b) Th(a) is a Banach space fac X
- (c)  $\exists X \times X \longrightarrow TX$   $(a,x) \longmapsto ax \in TaX$  we aswable with  $aa = 0 \in TaX$

Definition: For (X,d) a metric space with a nice enough measure, a tangent space an X is a Polish Space TX, with: (a)  $\pi: TX \longrightarrow X$  a Borel way (b) Th(a) is a Banach space fax X (c) I XxX -, TX (a,x) + ax e Ta X weaswable with  $\overrightarrow{aa} = \overrightarrow{o} \in TaX$ The tangent space is negatively curved if  $||ax - ay|| \le Ce^{-cd(a,x)}$  C = C(d(x,y))

Proper if 
$$\int ||ax - ay|| dx \ge K d(x,y)$$

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Borel wap

Borel wap

A Banach space ax e Ta X

(b) Ti(a) is a TX

(c) I X x X Ta = 0 e Ta X

with

The tangent space is negatively curved if  $||ax - ay|| \le Ce^{-cd(a,x)}$  C = C(d(x,y))Proper if  $\int ||ax - ay|| dx \ge Kd(x,y)$ 

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with The tangent space is negatively curved if C = C(d(x,y))The tangent C = C(d(x,y)) C = C(d(x,y))Slax-aglox > Kd(x,y)

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with The tangent space is negatively curved if C = C(d(x,y))The tangent C = C(d(x,y)) C = C(d(x,y))Proper if  $\int_X \|ax - ay\| dx > K d(x,y)$ 

Vuniformly locally finite important in general: Minasyan-Osin produce groups that have fix points au any isometric action an an e space, but admit an effective action on a quasi-hee.

THANK YOU

FOR YOUR

ATTENTION!