Sierpiński Carpets and relatively hyperbolic groups

Lucas Henrique Rocha de Souza [1]

Resumo: The topology of a Bowditch boundary of a relatively hyperbolic group (with respect to a set of parabolic subgroups) has its importance, not only as an invariant for the group, but as a way to encode algebraic information about it, such as decompositions of the group as graphs of groups or if the group is a group of isometries of a manifold, for example. We present some examples of topological spaces that can appear as boundaries of relatively hyperbolic groups.

Whyburn showed that if we take a 2-sphere and remove an infinite collection of open disks satisfying some properties, then we get the 1-dimensional Sierpiński Carpet. After that, Cannon generalized it for n-dimensional Sierpiński Carpets. Recently, Tshishiku and Walsh gave another characterization of the Sierpiński Carpet: if we take a 2-sphere, remove a countable dense set and replace each point by a circle, then we get a 1-dimensional Sierpiński Carpet. We generalized their result for a n-dimensional Sierpiński Carpet. Then, we are able to show that some groups have a Bowditch boundary homeomorphic to the n-dimensional Sierpiński Carpet.

Referências

[1] L. H. R. de Souza, A generalization of convergence actions.
    Preprint 2019. arXiv 1903.11746 [math.GR]

[2] L. H. R. de Souza, Characterization of the n-dimensional Sierpiński carpet as an inverse limit of closed balls
    Preprint 2022. arXiv 2203.11282 [math.GN]

[3] L. H. R. DE SOUZA, *Constructing Bowditch boundaries of some relatively hyperbolic groups that are homeomorphic to the n-dimensional Sierpiński carpet.* Preprint 2022. ArXiv: 2208.06942 [math.GT].

[4] L. H. R. DE SOUZA, *Gluing spaces without identifying points.* Topology and its applications, v. 338, Article 108671.

---
[1]UFMG ,
henrique.lucas20003@gmail.com