

Manuel Alonso Morón*, *Universidad Complutense de Madrid, Spain*

Uniformly continuous maps between ends of R-trees

In this talk we will describe an isomorphism of categories involving real trees and ultrametric spaces. This is mainly related to a paper due to Hughes (R-trees and ultrametric spaces: a categorial equivalence, *Advances in Mathematics*, 189, (2004) 148–191). but also to Morón, M. A., Ruiz del Portal, F. R. (Shape as a Cantor completion process, *Mathematische Zeitschrift*, 225, (1997), 67–86).

We are going to focus on some consequences related to inverse sequences and to Shape theory passing to the end, to infinity, in our construction.

We will go further on the following Serre's observation:

“...We therefore have an equivalence between pointed trees and inverse systems of sets indexed by positive integers”.

contained in Serre, J.P. *Trees*, Springer-Verlag, New York (1980), pages 18–19.

We then prove that if we consider the standard real metric on the simplicial trees then the category of towers can be described by means of the bounded coarse geometry of the corresponding tree.

Based on the above equivalence it is natural to ask for describing properties in one of the categories in terms of the other. This is the case of the important property as Mittag-Leffler for towers. Our geometrical characterization of Mittag-Leffler property in inverse sequences is given in terms of the Lipschitz, and metrically proper, homotopy type of the corresponding tree and its maximal geodesically complete subtree.

*This is a joint work with Álvaro Martínez Pérez