

GROUP THEORY

seminar

INJECTIVE HOMOMORPHISMS BETWEEN BIG MAPPING CLASS GROUPS

SPEAKER: Javier Aramayona (ICMAT-CSIC)

DATE: Wednesday, 18 November 2020 - 11:00

PLACE: Online - <https://conecta2.csic.es/b/yag-vzv-4gd>

ABSTRACT: A classical result of Ivanov-McCarthy asserts every injective endomorphism of the mapping class group of a (sufficiently complicated) finite-type surface is induced by a homeomorphism. In particular, mapping class groups of finite-type surfaces are co-Hopfian. In the first part of this talk, we will sketch a proof of this result, and explain why the strategy fails catastrophically for infinite-type surfaces.

In the second part, we will in fact construct families of examples of infinite-type surfaces whose (pure) mapping class groups are not co-Hopfian. We will do so by exhibiting several different explicit constructions of injective homomorphisms that are not surjective. In some of these cases, the homomorphisms constructed have further "exotic" dynamical properties.

A common feature of our examples is that Dehn twists are sent to products of Dehn twists. For this reason, we will then focus on (not necessarily injective, a priori) homomorphisms that send single Dehn twists to single Dehn twists. We will prove a strong superrigidity result for such homomorphisms: with some extra hypotheses, they are always induced by a homeomorphism between the underlying surfaces.

This is joint work with Chris Leininger (Rice) and Alan McLeay (Luxembourg).