

CONJUGACY STABILITY IN ARTIN GROUPS

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ABSTRACT. Artin (or Artin-Tits) groups are generalizations of braid groups that are defined using a finite set of generators S and relations $abab\cdots = baba\cdots$, where both words of the equality have the same length. Although this definition is quite simple, there are very few results known for Artin groups in general. Classic problems as the word problem or the conjugacy problem are still open. In this talk, we study a problem concerning a family of subgroups of Artin groups: parabolic subgroups. These subgroups have proven to be useful when studying Artin groups (for example, they are used to build interesting simplicial complexes), but again, we do not know much about them in general. Our problem will be the following: Given two conjugate elements of a parabolic subgroup P of an Artin group A , are they conjugate via an element of P ? This is called the conjugacy stability problem. In 2014, González-Meneses proved that this is always true for braids, that is, geometric embeddings of braids do not merge conjugacy classes. In an article with Calvez and Cisneros de la Cruz, we gave a classification for spherical Artin groups and proved that the answer to the question is not always affirmative. In this talk, we will explain how to give an algorithm to solve this problem for every Artin group satisfying two properties that are conjectured to be always true.