

LIB60BER

On a relation between algebraic and geometric properties of braids

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ABSTRACT

This is a joint work with Volker Gebhardt and Bert Wiest. We will introduce some algebraic operations, called cyclic slidings, that can be used to solve the conjugacy problem in the braid groups, in a simple way. These operations allow to find conjugates of a given braid, which are as simple as possible from the algebraic point of view (related to left greedy normal forms). We will then show that cyclic slidings also simplify braids from the geometric point of view, untangling the reduction curves. Hence they provide a simple algorithm to determine whether a braid is pseudo-Anosov, periodic or reducible, and in the latter case to find its reduction system of curves.