

Mapping Class Groups and Birman-Hilden Property

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Mapping class groups of surfaces and branched covers play an important role in low dimensional topology. This makes the study of the algebraic structure of the mapping class groups even more interesting. In this talk, we will consider mainly nonorientable surfaces, their mapping class groups, which are far less understood compared to their orientable counter parts. For example, generating sets for the mapping class groups of nonorientable surfaces were known in sixties. On the other hand, presentations of the mapping class groups of nonorientable surfaces have only been given recently.

After we give some preliminaries on surfaces, mapping class groups and some other related structures, we will consider the Birman-Hilden property of branched covers of surfaces, both orientable and nonorientable. Basically, the Birman-Hilden property is about a relation between the mapping class groups of the surfaces in a branched cover and they play an important role in understanding the algebraic structure of mapping class groups.

Keywords. mapping class groups, branched covers.