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Stable cohomology of mapping class groups with some particular twisted coefficients

Wednesday 20 September 2023 10:20 (30 minutes)

The twisted cohomology of mapping class groups of compact orientable surfaces (with one boundary) is difficult to compute generally speaking. In this talk, I will describe the computation of the stable cohomology groups of these mapping class groups with twisted coefficients given by the first homology of the unit tangent bundles of the surfaces. This type of computation is out of the scope of the traditional framework for cohomological stability. Indeed, these twisted coefficients define a contravariant functor over the classical category associated to mapping class groups to study homological stability, rather than a covariant one. I will also explain the computations of the stable cohomology algebras with with twisted coefficients given by the exterior powers of these representations. This represents a joint work with Nariya Kawazumi. I will finally present some recent progresses on the computations of the stable cohomology groups of mapping class groups with twisted coefficients given by the Moriyama representations.

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