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A non-commutative Reidemeister-Turaev torsion of homology cylinders

Tuesday 19 September 2023 11:00 (55 minutes)

A homology cylinder is a 3-manifold that is homologically the product of a surface and an interval.

In this talk, we introduce the Reidemeister-Turaev torsion of homology cylinders which takes values in the K_1 -group of the \mathbb{I} -adic completion of the group ring of the fundamental group of a surface over the rationals, and prove that its reduction by the ideal $\hat{\mathbb{I}}^{d+1}$ is a finite-type invariant of degree d .

We also show that the 1-loop part of the LMO homomorphism and the Enomoto-Satoh trace can be recovered from the leading term of our torsion.

This is joint work with Masatoshi Sato and Masaaki Suzuki.

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