An algorithmic method to compute plat-like Markov moves for genus two 3-manifolds

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Abstract

The talk deals with equivalence of links in 3-manifolds of Heegaard genus 2. Starting from a description of such a manifold introduced in [1], that uses 6-tuples of integers and determines a Heegaard decomposition of the manifold, we construct an algorithm (implemented in c++) which allows to find the words in $B_{2,2n}$, the braid group on 2n strands of a surface of genus 2, that realizes the plat-equivalence for links in that manifold. In this way we extend to the case of genus 2 the result obtained in [2] for genus 1 manifolds. We describe in particular a case of this construction.

[1] Casali, M. R. Grasselli, L. 2-symmetric crystallizations and 2-fold branched coverings of S3.Discrete Math.87,9–22 (1991).

[2] Cattabriga, A. Gabrovšek, B. A Markov theorem for generalized plat decomposition. Ann.Sc. Norm. Super. Pisa Cl. Sci.XX,1273–1294 (2018).