

# Twisted Alexander polynomial and surjective homomorphisms between knot groups

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The twisted Alexander polynomial is defined for a finitely presentable group with a surjective homomorphism to a free abelian group and a linear representation. Kitano-Suzuki-Wada showed that if there exists a surjective homomorphism between two groups, then the twisted Alexander polynomials have some property. As an application, for any two prime knots with up to 10 crossings, we determine whether there exists a surjective homomorphism between their knot groups.

Moreover, we computed the numbers of the conjugacy classes of  $SL(2; \mathbb{Z}/p)$ -representation of the above knots for relatively small  $p$ . We show that how this number can distinct prime knots with up to 10 crossings.

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