The multiplicities of non-acyclic SL2-representations and L-functions of twisted Whitehead links

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We briefly survey a joint work [2] with Léo Bénard, Ryoto Tange, and Anh T. Tran, which is a continuation of our previous work [8] (See also [6, 9, 7] and [4, 5, 3]).

We consider a natural divisor on SL2C-character varieties of knots and links, given by the so-called acyclic Reidemeister torsion. We provide a geometric interpretation of this divisor. We focus on the particular family of odd twisted Whitehead links W_{2k−1}, where we show that this divisor has multiplicity two. Moreover, we apply these results to the study of the L-functions of the universal deformations of representations over finite fields of twisted Whitehead links.

Figure 1. The twisted Whitehead link W_k

References