

1096-57-1083

Susan M. Abernathy* (sabern1@tigers.lsu.edu). *The Kauffman bracket ideal for genus-1 tangles.*

Given a compact oriented 3-manifold M in S^3 with boundary, an $(M, 2n)$ -tangle \mathcal{T} is a 1-manifold with $2n$ boundary components properly embedded in M . We say that \mathcal{T} embeds in a link L in S^3 if \mathcal{T} can be completed to L by a 1-manifold with $2n$ boundary components exterior to M . The link L is called a closure of \mathcal{T} . We define the Kauffman bracket ideal of \mathcal{T} to be the ideal $I_{\mathcal{T}}$ of $\mathbb{Z}[A^{\pm 1}]$ generated by the reduced Kauffman bracket polynomials of all closures of \mathcal{T} . If this ideal is non-trivial, then \mathcal{T} does not embed in the unknot. We give an algorithm for computing a finite list of generators for the Kauffman bracket ideal of any $(S^1 \times D^2, 2)$ -tangle, also called a genus-1 tangle, and give an example of a genus-1 tangle with non-trivial Kauffman bracket ideal. Furthermore, we show that if a single-component genus-1 tangle \mathcal{T}' can be obtained as the partial closure of a $(B^3, 4)$ -tangle \mathcal{T} , then $I_{\mathcal{T}} = I_{\mathcal{T}'}$. (Received September 12, 2013)