SLIDING RELATION IN THE KAUFFMAN BRACKET SKEIN MODULE OF A 2-BRIDGE KNOT EXTERIOR

In this talk, we give an expicit formula for an underlying relation in the Kauffman bracket skein module of the exterior of the 2-bridge knot $S(2pq + 1, 2q)$, which is called the "sliding relation" in this talk. This relation comes from a sliding of the trivial knot in a genus 2 handlebody along a simple closed curve (attaching slope) along which a 2-handle is attached to obtain the exterior of a 2-bridge knot, and we show that the relationis essential. We also give an application of the formula to $SL(2, \mathbb{C})$ character variety of the fundamental group of the 2-bridge knot complement. Finally we research the commensurability of such 2-bridge knot exteriors.