

1014-57-425

Louis H. Kauffman* (kauffman@uic.edu), Math UIC, 851 south Morgan Street, Chicago, IL 60607-7045. *Long Virtual Strings*. Preliminary report.

A long virtual string is a 1-1 tangle whose crossings are classical flat crossings and virtual crossings. Consecutive virtual crossings can detour across classical flat crossings, but flat crossings cannot detour across virtual crossings. Long virtual strings correspond to ordered Gauss codes (or base-pointed Gauss diagrams) taken up to (flat) Reidemeister moves. Let LF denote the collection of long flat virtuals. Let LV denote the collection of long virtual knots (here the classical crossings are not flat and there are also virtual crossings). Define $D:LF \longrightarrow LV$ by associating a classically descending diagram to the flat diagram (using the order given by the long flat). (The suggestion to consider the descending diagram is due to V. Turaev.)

Theorem. $D:LF \longrightarrow LV$ is a well-defined injection from long virtual strings to long virtual knots up to virtual equivalence.

This talk will prove the above Theorem and discuss how it can be used to discriminate long strings from one another by using invariants of virtual knots such as self-linking number, Jones polynomial, quandles and biquandles. We will compare these techniques with the more difficult question of classifying all virtual strings. (Received September 15, 2005)