

1105-57-62

Louis H Kauffman* (kauffman@uic.edu), Mathematics Department, University of Illinois at Chicago, 851 South Morgan Street, Chicago, 60607-7045. *Quantum Link Invariants and Rotational Virtual Knot Theory*. Preliminary report.

This talk is self-contained. We define quantum link invariants via augmented solutions to the Yang-Baxter equation. We show how the bracket polynomial model of the Jones polynomial fits into this framework and we show how many other invariants fit into this framework. We also briefly discuss how quantum link invariants can be formulated in terms of Hopf algebras. Then we discuss how classical knot theory extends to virtual knot theory and to rotational virtual knot theory. In rotational virtual knot theory one adds virtual crossings and augments the Reidemeister moves by detour moves that are regular homotopies of the arc moved in the detour. We then prove the Theorem: Every quantum link invariant of classical links extends to an invariant of rotational virtual knots and links. This theorem shows that Rotational Virtual Knot Theory is the proper domain for the study of quantum link invariants. The talk will consider many examples and questions that arise. (Received September 02, 2014)