1067-57-1589   **Louis H. Kauffman*** (`kauffman@uic.edu`), Mathematics Department, University of Iliniois at Chicacgo, 851 South Morgan Street, Chicago, IL 60607-7045. *Virtual Knots, Khovanov Homology and Quantum Information.*

This talk will review relationships among virtual knot theory, Khovanov homology for classical and virtual knots, and quantum information theory. In particular, we configure a finite dimensional Hilbert space whose basis states generate the Khovanov complex for a knot. In this way we associate a Hilbert space to the knot in such a way that the Khovanov homology appears naturally and so that quantum algorithms for the associated knot polynomial can be interpreted in terms of this homology. This is part of an exploration of the possible physical interpretations of Khovanov Homology, quantum knots and virtual knot theory. (Received September 21, 2010)