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**Louis Hirsch Kauffman\*** ([kauffman@uic.edu](mailto:kauffman@uic.edu)), Louis H. Kaufman, 5530 South Shore Drive, Apt 7C, Chicago, IL 60637-1946. *Quantum Computing with Majorana Fermions*.

A Majorana fermion is a fermion that is its own anti-particle. Such particles occur in the mathematics of the Ising model, possibly in the electronics of nano-wires and in the quasi-particles that are conjectured to underly the quantum Hall effect. The purpose of this talk is to show how representations of the Artin braid group are related to Majorana fermions and to discuss how the mathematics of these models is related to structures of knot-set theories and logical structures such as the formalism of the calculus of indications of G. Spencer-Brown which is generated by a logical particle  $[ ]$  that can interact with itself in two ways:  $[ ] [ ] \longrightarrow [ ]$  or  $[ [ ] ] \longrightarrow *$  (where  $*$  is an empty word) thus having the fusion rules of a Majorana fermion. This talk is related to the following paper by the presenter: <http://arxiv.org/pdf/1301.6214.pdf>. (Received February 03, 2013)