1106-81-1245 **Pieter Naaijkens*** (pieter.naaijkens@itp.uni-hannover.de), Institute for Theoretical Physics, Leibniz University Hannover, 30167 Hannover, Germany. *Operator algebras and topological quantum phases.*

One of the striking features of topologically ordered phases of matter is that they have quasi-particle excitations with peculiar properties: they do not behave like bosons or fermions, but rather as anyons. That is, if one exchanges two of such quasi-particles, one can get something more interesting operation on the state of the system than just a sign change. Mathematically such anyons can be realized as equivalence classes of representations of a C^*-algebra of observables. In this talk I will explain how one can use operator algebraic methods to further study these anyons. In particular, I will explain how we can look at the inclusion of certain (von Neumann) algebras of observables to learn something about the quantum dimension of the system. (Received September 11, 2014)