1046-81-736 **Nicholas Read*** (nicholas.read@yale.edu). *Quantum Hall wavefunctions and topological quantum field theories.*

This talk will review the use of conformal blocks from a rational conformal field theory as so-called "trial wavefunctions" for the fractional quantum Hall effect. These functions are essentially symmetric polynomials in N complex variables. The physical idea of adiabatic transport as N goes to infinity sets up a projectively-flat connection on a moduli space of these functions, whose properties can be characterized when some hypotheses are satisfied. This leads to a theoretical physics construction of many topological quantum field theories. These are connected with invariants of three-manifolds and of links. Recent work with Zhenghan Wang connects the case of antisymmetric wavefunctions for fermions with invariants of three-manifolds with a spin structure and with "spin modular categories". (Received September 10, 2008)