

Chern-Simons Gauge Theory and Symplectic Quantum Mechanics

I will describe the relation between Chern-Simons gauge theory (where the fields are connections on 3-manifolds and the action is the Chern-Simons functional and another gauge theory called symplectic quantum mechanics (where the fields are paths in a symplectic manifold satisfying prescribed boundary conditions and the action is the symplectic action functional). This comparison is most useful when the three-manifold is a mapping torus of a 2-manifold equipped with a symplectic diffeomorphism.