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Charles Frohman* (frohman@math.uiowa.edu), The Department of Mathematics, The University of Iowa, Iowa City, IA 52242. *Embedded Khovanov Homology and Skein Modules of Three Manifolds.*

I will give an overview of progress along these lines including work of Adam McDougal on a diagramless Khovanov homology, Heather Russell on skein modules and the the Springer action, Jeff Boerner's work on homology theories for links in surface bundles, Uwe Kaiser's work on skein modules associated to Frobenius algebras, and my own work.

The heart of the idea is that quantum invariants seem to be more about embedded surfaces in three manifolds rather than about links. We will see how the idea of TQFT in dimension 1+1 leads you to studying incompressible surfaces, and see how relations between incompressible surfaces reflect the topology of the manifold. (Received July 31, 2008)