SURFACE BRAID GROUPS AND SKEIN CATEGORIES

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Abstract. Most interesting representations of braid groups can be conveniently described using the language of braided monoidal categories. The main examples of such structures can be constructed from the representation theory of quantum groups or, equivalently, from the theory of so-called Drinfeld associators.

The general formalism of factorization homology, a refinement of Walker's notion of "skein category", provides a canonical extension of these constructions to representations of surface braid groups. A key property of this formalism is a certain compatibility with cutting and gluing of surfaces which makes the resulting structures effectively computable.

In this talk I'll explain this formalism, as well as various applications thereof in quantum algebra.