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Title: Subfactors and Symmetry

Abstract: Vaughan Jones introduced the theory of subfactors in the early 80's as a ``Galois theory" for inclusions of certain algebras of operators on a Hilbert space. He showed that these inclusions are extremely rigid and that a very rich combinatorial structure is naturally associated to each subfactor. An interplay of analytical, algebraic-combinatorial and topological techniques is intrinsic to the theory.

A subfactor can be viewed as a group-like object that encodes what one might call {\it generalized symmetries} of the mathematical or physical situation from which it was constructed. To decode this information one has to compute a system of inclusions of certain finite dimensional algebras naturally associated to the subfactor. For instance, the Temperley-Lieb algebras and their generalizations, the Fuss-Catalan algebras, arise as basic symmetries in this way. These algebras are examples of so-called {\it planar algebras} (Jones) and they give rise to knot invariants and solutions of the Yang-Baxter equation. I will present in my talk some of the ideas and concepts in subfactor theory and will discuss some applications.