

FINITE TENSOR CATEGORIES

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A tensor category is an abelian category with a tensor product, a unit object subject to associativity and unity axioms. This concept, introduced by MacLane and Benabou, encodes the category of representations of groups, Lie algebras and more generally of Hopf algebras. Finite tensor categories are tensor categories subject to some finiteness conditions. Basic examples come from the theory of finite dimensional Hopf algebras. Finite tensor categories appear encoding symmetries of distinct mathematical structures. Their applications reach diverse areas of mathematics: subfactor theory, statistical mechanics and Hopf algebra theory. This makes the problem of their classification both a highly interesting and difficult one. In this course I will introduce the notion of finite tensor categories and its basic properties. We will present examples to illustrate the theory.