BRAIDED TENSOR CATEGORIES

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Abstract: Just as associative algebras naturally form a Morita 2-category, of algebras bimodules, and intertwiners, so tensor categories form a 3-category, and braided tensor categories form into a 4-category. In this talk, I'll give an introduction to the 4-category of braided tensor categories, and explain how algebraic properties and structures of a braided tensor category – e.g. rigidity, modularity, balancing – translate to the 4-category – e.g. as dualizability, invertibility, orientability of objects – and hence lead to applications and constructions in topological field theory. As always, the most interesting examples come from quantum groups, and the trickiest and most tantalizing phenomena are at roots of unity. This is joint work with Adrien Brochier and Noah Snyder.