A class of modular quasiHopf algebras

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We describe a generalization of the twisted quantum double construction associated to a finite group G, giving rise to quasiHopf algebras determined by G and some cohomological data. We give necessary and sufficient conditions that these quasiHopf algebras are modular in the sense that the category of finite-dimensional modules is a modular tensor category. Just as the usual twisted quantum doubles of G (conjecturally) describe the fusion rules of holomorphic G-orbifolds, these more general quasiHopf algebras appear to describe the fusion rules of certain rational G-orbifolds, including the $c = 1$ orbifold theories.

This is joint work with Richard Ng.

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