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The search for the exotic in Subfactors and Conformal Field Theory

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Groups can act as symmetries of physical systems and on their mathematical models as in conformal field theory.
Vaughan's subfactor theory provides a framework for quantum symmetries beyond those arising from groups or their deformations as quantum groups or loop groups. The accepted position was that the Haagerup system, associated with the a subfactor at index $(5+\sqrt{(13)})/2$, was exotic and surely could not be constructed from group like symmetries. I discuss work with Terry Gannon that this should be considered as misconception and the more general issue of constructing conformal field theories from subfactors and their associated modular tensor categories.

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