Hopf25

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Interpolation categories for Conformal Embeddings

We give a diagrammatic description of the categories of modules coming from the conformal inclusions $\mathcal{V}(\mathfrak{sl}_N, N) \subset \mathcal{V}(\mathfrak{so}_{N^2-1}, 1)$. A small variant on this construction has uniform generators and relations which are rational functions in $q = e^{2\pi i/4N}$, which allows us to construct a new continuous family of tensor categories at non-integer level which interpolate between these categories. This is the second example of such an interpolation category for families of conformal inclusions after Zhengwei Liu's interpolation categories $\mathcal{V}(\mathfrak{sl}_N, N+2) \subset \mathcal{V}(\mathfrak{sl}_{N(N+1)/2}, 1)$ which he constructed using his classification Yang-Baxter planar algebras. Our approach is different from Liu's, we build a two-color skein theory, with one strand coming from X the image of defining representation of $\mathfrak{sl}_N$ and the other strand coming from an invertible object g in the category of local modules, and trivalent vertex coming from a map $X \otimes X^* \longrightarrow g$.

This is joint work with Cain Edie-Michell and Hans Wenzl.