

Current algebras from categorified quantum groups

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In this talk we will review the categorification of quantum $\mathfrak{sl}(2)$. The higher structure in categorified quantum groups can be encoded in a planar diagrammatic calculus. The Hochschild homology of categorified quantum $\mathfrak{sl}(2)$ can be calculated by studying the planar diagrams on an annulus. In this talk we will explain recent new results with Beliakova, Habiro, and Živković, showing that this Hochschild homology coincides with the current algebra of $\mathfrak{sl}(2)$. This implies that every 2-representation of categorified $\mathfrak{sl}(2)$ gives rise to a representation of the current algebra.

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