

Extending equivariant Topological Modular Forms to the cusp using vertex algebras

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In this talk, I will illustrate that the Segal-Stolz-Teichner paradigm and global categorical symmetries are starting to merge, by explaining the ongoing work with Theo Johnson-Freyd and Daniel Berwick-Evans. The spectrum “TMF”, Topological Modular Forms, is related to 2-dimensional supersymmetric quantum field theories (SQFTs). There is an equivariant refinement of TMF which reflects the group-symmetry in SQFTs. The interpretation of its variant “ Tmf ” has been a mystery, and its equivariant refinement has not been constructed. We provide an answer to both questions using the theory of vertex operator algebras and modular tensor categories.