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Higher representations of $gl(1|1)^+$

Heegaard-Floer theory is a 4-dimensional topological field theory. It has been partially extended down to dimension 2: Lipshitz-Osvath-Thurston constructed a differential algebra for a surface equipped with some extra structure. Douglas and Manolescu started building a partial extension down to dimension 1. I will discuss joint work with Andy Manion where we explain a gluing mechanism for surfaces. This is based on the construction of a monoidal 2-category of 2-representations of $gl(1|1)^+$.