FINITARY 2-REPRESENTATION THEORY

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Abstract:

Linear additive 2-representations of linear additive 2-categories are categorical analogues of linear representations of algebras. In general, these are different from module categories over tensor categories, which are abelian and satisfy other conditions. The first interesting examples of linear additive 2-representations showed up in the work on categorification by (varying subsets of) Bernstein, Chuang, Frenkel, Huerfano, Khovanov, Lauda, Rouquier, Stroppel and others, in the first decade of this century. From 2010 onward, Mazorchuk and Miemietz started to develop a systematic theory of finitary 2-representations, which satisfy certain finiteness conditions. In the last 6 years, many new fundamental results on finitary 2-representations were obtained, which proved to be particularly powerful in the study of finitary 2-representations of Soergel bimodules of finite Coxeter type. In my talk, I will give an overview of finitary 2-representation theory and briefly sketch the aforementioned results and their application to Soergel bimodules, based on my joint work with Mazorchuk, Miemietz, Tubbenhauer and Zhang.