Higher-dimensional Auslander algebras of type $\mathbb{A}$ and the higher-dimensional Waldhausen S-construction

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This is a report on part of a joint project with Tobias Dyckerhoff (Bonn). In this talk I will describe a relationship between Iyama's higher-dimensional Auslander algebras of type $\mathbb{A}$ [2] and a higher-dimensional version of the Waldhausen S-construction, a construction arising in the context of algebraic K-theory [4]. Using rudiments of the language of higher category theory, I will explain how to use this relationship to extend the higher-dimensional reflection functors of Iyama and Oppermann [3] to representations of the higher-dimensional Auslander algebras of type $\mathbb{A}$ in an arbitrary stable ∞-category (=enhanced triangulated category). If time permits I will describe certain finite ladders of recollements that arise in this context. These results can be seen as contributions to the abstract representation theory of Groth and Šťovíček [1].

References

[1] M . Groth, J. Šťovíček, *Tilting theory via stable homotopy theory*, J. Reine Angew. Math., 2016, Ahead of print, 1-62.

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[4] F. Waldhausen, *Algebraic K-theory of spaces*, Algebraic and geometric topology (New Brunswick, N.J., 1983), Springer, Berlin, 1985, 1126, 318-419.