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[chair: Simeon Hellerman (Kavli IPMU)]

Correlation functions of scalar field theories from homotopy algebras

When actions are written in terms of homotopy algebras such as  $A_\infty$  algebras and  $L_\infty$  algebras, expressions of on-shell scattering amplitudes in perturbation theory are universal for both string field theories and ordinary field theories. We thus expect that homotopy algebras can be useful in gaining insights into quantum aspects of string field theories from ordinary field theories. In addition to on-shell scattering amplitudes we find that correlation functions can also be described in terms of homotopy algebras, and in this talk we explain explicit expressions for correlation functions of scalar field theories using quantum  $A_\infty$  algebras presented in arXiv:2203.05366. Then we further discuss the application to the renormalization group.