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Nikolas Schonsheck* (schonsheck.2@osu.edu). *TQ-completion of certain fibration sequences.*

By considering algebras over an operad \mathcal{O} in one's preferred category of spectra, we can encode various flavors of algebraic structure (e.g. commutative ring spectra). Drawing intuition from singular homology of spaces and Quillen homology of rings, topological Quillen (TQ) homology is a naturally occurring notion of homology for these objects with analogies to both singular homology and stabilization of spaces.

For a given \mathcal{O} -algebra X , there is a canonical way (following Bousfield-Kan) to “glue together” iterates $\mathrm{TQ}^n(X)$ of the TQ-homology spectrum of X to construct “the part of X that TQ-homology sees,” namely its TQ-completion. We then ask, “When can X be ‘recovered from’ $\mathrm{TQ}(X)$ in this way?”

Bousfield-Kan consider the analogous question in spaces and conclude that all nilpotent spaces are weakly equivalent to their homology completion. The key technical maneuver of their proof involves showing that certain fibration sequences are preserved by completion. In this talk, we will review the construction of TQ-homology and discuss certain types of fibration sequences of \mathcal{O} -algebras which are preserved by TQ-completion. (Received January 21, 2020)