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Generalizing the Bousfield-Kan formula

In 1972, Bousfield and Kan gave a formula for computing homotopy colimits of (pointed) spaces using an ordinary colimit of a "fattened up" diagram. This formula, which holds in any simplicial model category, is both intuitive and powerful, due to the central role of homotopy colimits in homotopy theory. For instance, they provide a unifying framework for results such as the van-Kampen theorem, the Mayer-Vietoris long exact sequence, and the Blakers-Massey theorem.

In this talk, I will present a generalization of this formula to the setting of monoidal model categories (j/w Kensuke Arakawa and Chris Kapulkin, arXiv:2511.12809) . This talk aims to be accessible to mathematicians from across topology, and will introduce homotopy colimits from the ground up using a "topology-first" perspective.