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*Synthetic approach to the Quillen model structure on spaces*

Quillen's construction of a model structure on the category of topological spaces is a fundamental result in homotopy theory. This construction has since been applied to several related categories, such as  $k$ -spaces, and the importance of many model categories is justified by their equivalence with Quillen's structure on spaces.

In this talk, we will present an axiomatic approach to constructing Quillen's model structure on spaces to apply it to a wider range of settings. As special cases we recover several existing model structures, such as on the categories of sober spaces and of pseudotopological spaces. We also use this approach to construct a novel model structure on the category of locales, making the coreflection to sober spaces a Quillen adjunction.

This is joint work with Chris Kapulkin (arXiv:2310.14235).