Algebraic K-Theory Seminar

A theory of elementary higher toposes

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Abstract: Topos theory was developed by Grothendieck in order to be able to study schemes in their proper categorical context, by applying the language of sheaves. Later people realized that it can be generalized to a theory of elementary toposes, which allow us to study sets from a categorical perspective and even give a categorical characterization of sets. The theory of Grothendieck toposes was later generalized by Lurie and Rezk to the context of higher categories, giving rise to higher toposes. This theory has been successfully used in derived algebraic geometry. However, as of now, we still lack an analogous theory of elementary higher toposes. The goal of this is to introduce such a definition of elementary higher toposes and show this definition satisfies some common sense conditions that we would expect of any such theory.

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