

# Topology Seminar

**Shai Keidar**

of The University of Chicago will be speaking on

## Higher Galois theory in chromatic homotopy theory

on November 4 at 4:30 in  
MIT Room 2-131

Classical Galois theory is a powerful tool for understanding descent for finite field extensions, with the absolute Galois group organizing all such extensions and Kummer theory connecting them to the Picard group. In the infinity-categorical setting, one can go further, studying ‘higher’ groups and their corresponding Galois extensions. We develop a Galois theory framework tailored for higher semiadditive categories of height  $n$ , replacing finite groups with  $n$ -finite groups. We prove the existence of a pro- $n$ -finite ‘absolute Galois group’ representing Galois extensions, extending previous work by Akhil Mathew, and establish a higher Kummer theory linking these Galois extensions to the higher Brauer groups of the category. Focusing on the telescopic category, we construct new elements in the Picard and Brauer groups and relate them to Galois extensions of the  $T(n)$ -local sphere.

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