

# Topology Seminar

**Mike Shulman**

of University of San Diego will be speaking on

## Internal languages for $\infty$ -toposes and sub- $\infty$ -toposes

on April 6 at 4:30 in  
MIT Room 2-131

One of the most important insights of classical topos theory is that a topos (a category of sheaves) has an ‘internal language’, so that we can reason about its objects roughly ‘as if they were sets’. The recent development of ‘homotopy type theory’ provides a similar internal language for  $\infty$ -toposes ( $\infty$ -categories of stacks), allowing us to reason about its objects ‘as if they were spaces’. I will sketch this language and show how to apply it to study sub- $\infty$ -toposes; these are represented internally as ‘higher modalities’ on a Martin-Löf-Voevodsky universe, generalizing Lawvere-Tierney operators from classical topos theory.