# Algebra/Topology Seminar

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## Homology and Higher Categories

Thursday, February 5, 2026
3:00 p.m. in Massry B012

ABSTRACT. Infinity-categories are gadgets which generalize both spaces and categories, and as such are at least as complicated as the two put together. Unfortunately, they also turn out to be the natural setting in which to do homotopy theory, so they are a complication that we're forced to study. In this talk, we will introduce an invariant called the strictification of an infinity-category, and explain how it generalizes the homology of a space. In particular, we will show that viewing spaces as infinity-groupoids allows for a nice interpretation of homology as the universal way to put rigid, "linear" algebraic structure on a space. We will define and motivate all the higher categorical gadgetry; no particular background with anything beyond basic algebraic topology will be assumed.