Boğaziçi
MATH GRAD SEMINAR

An Invitation to Higher (Linear) Algebra: Stable ∞-categories and their Invariants

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Abstract:

Developed by Lurie in the context of his foundational work on higher categories, stable ∞-categories are a higher categorical model of triangulated and DG-categories which offer a slick and comprehensive overhaul of a variety of fundamental constructions in homological algebra. Beyond its immediate practical use in addressing the problems which have long plagued the theory of triangulated categories, the theory of stable ∞-categories may be regarded as the natural home of "higher" homological algebra and has seen wide adoption in many different fields. In this expository lecture, we will give an overview of the underpinnings of Lurie's theory and provide some motivation for this bold claim. If time permits, we will also discuss how one defines so-called additive invariants for certain classes of stable ∞-categories, with a focus on algebraic K-theory.

Date : Tuesday, April 15, 2025
Time: 14:00
Place: TB130, South Campus, Boğaziçi University