

34th Colloquium Lecture, School of Mathematics Faculty of Mathematics and Physics

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March 4, 2025, 3:40 pm, lecture hall K1

Sokolovská 83, Praha 8 – Karlín

Vanishing negative K-theory and bounded t-structures

Abstract

We will begin with a reminder of algebraic K-theory, and a few classical, vanishing results for negative K-theory. The talk will then focus on a striking 2019 article by Antieau, Gepner and Heller – it turns out that there are K-theoretic obstructions to the existence of bounded t-structures. The result suggests many questions. A few have already been answered, but many remain open. We will concentrate on the many possible directions for future research.

About the speaker

Professor Neeman obtained his Ph.D. in 1983 from Harvard (advisor: David Mumford). After four years at Princeton and an Associate Professor position at Univ. Virginia, he spent most of his career as a Professor at the Australian National University in Canberra. His main research interests are in algebraic geometry, homological algebra, and K-theory. He has written numerous research papers on Brown representability, Grothendieck duality, stable homotopy theory, and universal localization, published in *Ann. of Math.*, *Invent. Math.*, *J. Amer. Math. Soc.*, etc. He has also authored several monographs, notably *Triangulated Categories* (Princeton Univ. Press, 2001) and *Algebraic and Analytic Geometry* (CUP, 2007). He was an invited speaker at the ICM 2022. Recently, he obtained an ERC Advanced grant on *Triangulated categories and their applications, chiefly to algebraic geometry*.

Further information

<http://msekce.karlin.mff.cuni.cz/colloquia>