THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Algebraic Geometry and Representation Theory Seminar

Room 290C ,Ziskind Building
on Tuesday, Feb 27, 2018at 11:15

Professor Amnon NeemanAustralian National University

Approximability in derived categories

Abstract:

We will introduce the (new) notion of approximability in triangulated categories and show its power.

The brief summary is that the derived category of quasicoherent sheaves on a separated, quasicompact scheme is an approximable triangulated category.
As relatively easy corollaries one can: (1) prove an old conjecture of Bondal and Van den Bergh, about strong generation in D^{perf}(X), (2) generalize an old theorem of of Rouquier about strong generation in D^b_{coh}(X). Rouquier proved the result only in equal characteristic, we can extend to mixed characteristic, and (3) generalize a representability theorem of Bondal and Van den Bergh,from proper schemes of finite type over fields to proper schemes of finite type over any noetherian rings.

After stating these results and explaining what they mean, we will (time permitting) also mention structural theorems. It turns out that approximable triangulated categories have a fair bit of intrinsic, internal structure that comes for free.