Topology Seminar

David Gepner

of Purdue will be speaking on

Localization sequences in the algebraic K-theory of ring spectra

on March 30 at 4:30 in
MIT Room 2-131

Together with trace methods, the localization sequence comprises one of the only known methods for computing algebraic K-theory. If R is a ring spectrum and $R[S^{-1}]$ is a localization of R, then there is a fiber sequence of K-theory spectra $K(\text{fiber}) \to K(R) \to K(R[S^{-1}])$. In this talk, we will show that (under mild conditions) the fiber term is compactly generated by a Koszul-type spectrum formed from R and S, which when $R = BP\langle n\rangle$ and $S = \{v_n\}$ differs from $BP\langle n-1\rangle = R/v_n$. We will then apply trace methods to show that their K-theories differ, answering a question of Rognes. Time permitting, we will sketch how this fits into a general program (primarily due to Waldhausen, Rognes, Ausoni, and others) to understand the K-theory of the sphere in terms of the chromatic filtration of the stable homotopy category. This is joint work with Benjamin Antieau and Tobias Barthel.