Topology Seminar

Tomer Schlank

of Hebrew University will be speaking on

Cyclotomic Galois extensions in the chromatic homotopy

on February 22 at 4:30 in
MIT Room Zoom

The chromatic approach to stable homotopy theory is 'divide and conquer'. That is, questions about spectra are studies through various localizations that isolate pure height phenomena and then are put back together. For each height n, there are two main candidates for pure height localization. The first is the generally more accessible K(n)-localization and the second is the closely related T(n)-localization. It is an open problem whether the two families of localizations coincide. One of the main reasons that the K(n)-local category is more amenable to computations is the existence of well understood Galois extensions of the K(n)-local sphere. In the talk, I will present a generalization, based on ambidexterity, of the classical theory of cyclotomic extensions, suitable for producing non-trivial Galois extensions in the T(n)-local and K(n)-local context. This construction gives a new family of Galois extensions of the T(n)-local sphere and allows to lift the well known maximal abelian extension of the K(n)-local sphere to the T(n)-local world. I will then describe some applications, including the study of the T(n)-local Picard group, a chromatic version of the Kummer theory, and interaction with algebraic K-theory. This is a joint project with Shachar Carmeli and Lior Yanovski.

For information, write: `ishanl@mit.edu`