Topology Seminar

Shachar Carmeli

of Weizmann Institute of Science will be speaking on

Higher semiadditivity and the K(1)-local sphere

on July 19 at 10:00 in
MIT Room Zoom

Higher semiadditivity is a property of an infinity-category that allows, in particular, for the summation of families of morphisms between objects parametrized by pi-finite spaces.

Hopkins and Lurie showed that the K(n)-localizations of the infinity category of spectra are higher semiadditive. Consequently, by a work of Harpaz, the mapping objects in these infinity-categories admit the rich structure of higher commutative monoids. While many abstract properties of these higher commutative monoids are known, not many explicit computations of them have been carried out so far.

In my talk, I will present a work in progress, joint with Allen Yuan, which aims to completely determine this higher commutative monoid structure of the K(1)-local sphere. Specifically, I will show how to use higher semiadditive versions of algebraic K-theory and Grothendieck-Witt theory to compute the summation maps along groupoids for the K(1)-local sphere. At the prime 2, this allows us to realize some non-trivial classes in its homotopy groups as semiadditive cardinalities of pi-finite spaces, and to compute explicitly certain power operations that arise from the higher semiadditivity.

For information, write: ishanl@mit.edu