Topology Seminar

Simona Paoli

of Penn State Altoona will be speaking on

Homotopical properties of a weakly globular model of homotopy types

on February 8 at 4:30 in
MIT Room 2-131

Homotopy n-types are an important class of topological spaces: they amount to CW complexes whose homotopy groups vanish in dimension higher than n. The problem of modeling homotopy types is relevant both in higher category theory and homotopy theory and received contributions from both areas. There is a particularly simple model of homotopy types in the path connected case, consisting of n-fold categories internal to groups, also called cat^n-groups. This model, however, has the disadvantage that is it does not have an algebraic description of the Postnikov decomposition nor it is easy to establish algebraically when a map of cat^n-groups is a weak equivalence.

In this talk we introduce a new model of connected n-types through a subcategory of cat^n-groups, which we call weakly globular, for which the above issues are resolved in transparent way. We also describe other homotopical properties of this model, and discuss the relevance of these structures for higher category theory.