Topology Seminar

Martin Frankland

of MIT will be speaking on

Quillen cohomology of Π-algebras and application to their realization

on April 26 at 4:30 in
MIT Room 2-131

A Π-algebra is a graded group with additional structure that makes it look like the homotopy groups of a space. Given one such object A, one may ask if it can be realized topologically: Is there a space X such that $\pi_* X$ is isomorphic to A as a Π-algebra, and if so, can we classify them?

Work of Blanc-Dwyer-Goerss provided an obstruction theory to realizing a Π-algebra A, where the obstructions (to existence and uniqueness) live in certain Quillen cohomology groups of A. What do these groups look like, and can we compute them?

We will tackle this question from the algebraic side, focusing on Quillen cohomology of truncated Π-algebras. We will then use the obstruction theory to obtain results on the classification of certain 2-stage homotopy types, and compare them to what is known from other approaches.