"What's metaphorical, purple, and commutes?"

The Trivial Notions Seminar
Proudly Announces

Topological Abelian Groups

A talk by
Eric Wofsey

Abstract

Homotopy theory is hard. In particular, it's impossible to hope to classify all spaces up to (weak) homotopy equivalence. However, if you consider only spaces which can be given a continuous abelian group structure, a complete classification is possible, at least if you assume you can classify all discrete abelian groups. Indeed, it turns out that a topological abelian group is determined (up to weak homotopy equivalence) by its homotopy groups, a countable sequence of discrete abelian groups.

In this talk, we'll study the homotopy theory of topological abelian groups, and sketch a proof of this classification. As an extra consequence of the theory, we'll prove the following remarkable theorem of Dold and Thom: the homotopy groups of the free topological abelian group on a space X are naturally isomorphic to the homology groups of X. Among other applications, this gives a neat explicit construction of an Eilenberg-MacLane space $K(\mathbb{Z}, n)$ as the free abelian group on an n-sphere.

Thursday March 24$^{\text{th}}$, at 2:00 pm
Science Center 507